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Educational News and Editorial Comment

SUPERVISION OF CLASSROOM WORK BY PRINCIPALS

In an article in the *Educational Research Bulletin* (Ohio State University) for April 14, 1926, E. S. Stauffer, South High School, Columbus, Ohio, reports interviews with a number of school principals regarding their ideas and activities in the field of classroom supervision. One of the descriptive paragraphs in this article and the summary may be quoted.

It is no easy matter to put one's finger on the significant elements in the effective supervision of any school. One principal expressed the opinion that the less machinery there is for this purpose, the better for the school. Another laughed heartily when approached on this subject; after he had calmed down enough to talk, he said, "You cannot get anything of value in this line, because it exists only in literature." Still another lectured for half an hour on the psychology and philosophy of questioning and then asked, "Do you want to know what I think or what I actually accomplish in supervising instruction?" At the other extreme is the principal in City X who is organizing his clerical and administrative work so that he is released for a maximum amount of classroom supervision. Another said that he aims to visit several classes every day if only for a few minutes. Both of these expressed the hope that the teachers think of them as sympathetic advisers and not as inspectors. Interviews with teachers in the same schools indicated that their efforts are highly appreciated. Every

interview brought out the fact that clerical, administrative, and disciplinary duties are so heavy that no time is left to give supervision more than passing attention.

The outstanding facts discovered in this investigation can be briefly summarized. There is a lack of uniformity in procedure and a lack of agreement concerning the essentials of class activities. There is an evident laissez faire attitude among the principals and an almost uniformly favorable attitude on the part of the teachers toward constructive supervision by the principal. Fairly satisfactory supervisory techniques have been developed and are continually developing. Supervisory practice must keep pace with teaching technique as practiced by the average teacher if supervision is to be respected and welcomed by classroom teachers.

These paragraphs reveal a situation which is undoubtedly common in American schools. In general, principals recognize that they have not solved either the problem of training teachers in service or the problem of establishing and maintaining standards in the classrooms for which they are responsible. There is a rapidly increasing interest in the discussion of the duties of the principal, and the time is certainly at hand when special training will be demanded of all who have charge of schools. The discovery of inadequacies in the present supervisory practices is a first step in the direction of improvement in the situation.

NATURE TRAILS

The American Museum of Natural History, New York City, has published a pamphlet, *Nature Trails: An Experiment in Out-Door Education*, prepared by Frank E. Lutz. The pamphlet describes an experiment which is so suggestive of possibilities in nature-teaching that a number of paragraphs are quoted.

Through the courtesy of the Palisades Interstate Park and of Mr. W. A. Harriman, the entomological department of the American Museum of Natural History was granted the use of about forty acres of woodland and meadow in the Ramapo Mountains near Tuxedo, New York, about forty miles from New York City. There, aided by gifts from a number of friends, we established in 1925 a station for the study of insects, but we devoted our first season to an experiment in teaching about nature in general, with relatively little reference to insects and no research concerning them. It is this experiment, the "Nature Trail," that is discussed in the following pages.

As a matter of fact, we had two Nature Trails. They were simple paths through the woods, each about half a mile long and roughly circular. One we

called the Training Trail and the other the Testing Trail. . . . . The underlying idea, the spirit of the Training Trail, was expressed by a sign at its entrance as follows: "A friend somewhat versed in Natural History is taking a walk with you and calling your attention to interesting things." . . . .

An "outdoor museum" is the oldest type, for the first "museums"—places dedicated to the Muses—were pleasant groves where the interested walked and talked. When time permitted and our visitors so desired, we were glad to walk along the Trails with them, but the "friend" of our sign talked by means of small labels that called attention to the interesting things along the way.

The Training Trail had several features that are not usually present in botanical and zoölogical gardens. For one thing, the labels were more "chatty" than many scientific institutions think is compatible with dignity. Then, although few of the visitors realized it, the labels were so written that a given subject was opened simply, became more complex, and was closed by a short summing-up or by a few questions. Such an educational method was possible because the visitors (at least on their first visit) went along the trail in the "right" direction, and they went in the right direction because the start of the trail was very evident, but the end, a few feet from the start, was arranged so as to be hidden by trees. . . . .

Returning for a moment to the labels, not only were they chatty and written in a language that ordinary people could understand, a language that was sometimes almost colloquial, but here and there we had "asides" having nothing very directly to do with natural history. For example, there was a quotation from Burroughs on "walking," and, where the trail first met the babbling Wild Cat Brook, we had the following from Stevenson.

"There's no music like a little river's. It plays the same tune (and that's the favorite) over and over again, and yet does not weary of it like men fiddlers. It takes the mind out of doors; and, though we should be grateful for good houses, there is, after all, no house like God's out-of-doors. And lastly, sir, it quiets a man down like saying his prayers."

Our Training Trail had four main sections, and, for convenience in referring to them, each section was given a letter.

The first, or A, section, while somewhat general, was chiefly concerned with botany. A label told the visitor that on it would be pointed out—

"Sugar and Red Maples
Our Two Kinds of Hornbeams
The Two Great Groups of Oaks
Witch-hazel and True Hazels
True Solomon's Seal and False
The Five Kinds of Hickory
Butternut and Walnut
Blueberries and Huckleberries
How to Recognize an Ash Tree
Various Mushrooms"

The second, or M, section was devoted to "moisture-loving" things, like ferns, aquatic animals (including insects as animals, though that is a difficult idea for many people), and so on.

Leaving the M section, the visitors were told that

> "Along the N Section There Are
> Voiceless Wives
> Insects that Seem to Pray but Really Prey
> Wasps that Make Trees Work for Them
> A Viceroy that Mimics a Monarch
> A "Tiger" Lying in Wait
> And Other Interesting Things"

The N section dealt with entomology.

The final, or H, section asked, "How much have you learned?" It summed up the chief points of the other three. Tags were used in pairs. On the tag that covered its mate was a question, and, since this was not the Testing Trail but a part of the Training Trail, the answer to that question was given on the covered tag.

ANALYTICAL STUDIES OF SCHOOL SUBJECTS

The Denver school system is following its program of curriculum revision by a campaign of testing and analysis, which is to furnish the basis for continuous studies of the ways in which instruction can be improved. In the case of arithmetic, the first step was the issuance of a *Manual of Test, Analysis, and Remedial Instruction*, giving teachers detailed directions as to methods to be employed in testing their results and in following up difficulties. The second step was the compilation in mimeographed form of the results of tests given throughout the school system.

By means of a series of tests, it was found that the chief difficulties in simple addition "center around the missing number, zeros, and the equation form" and that "carrying is a difficulty in all the operations." Such conclusions derived from tests show teachers where they must lay emphasis in teaching and also guide them in discovering the points in the curriculum where remedial work is most likely to be needed.

Further quotations from the mimeographed statement are as follows:

> The following difficulties in multiplication are outstanding:
> 1. Lack of mastery of the fifty most difficult facts.
> 2. Inability to handle a two- or three-figure multiplier.

The following difficulties in division are evident:

SHORT DIVISION

1. Lack of mastery of the most difficult division facts with remainders.
2. Zero difficulties in dividend and quotient.

LONG DIVISION

1. Lack of ability to find quotient figure when trial quotient is not true quotient.
2. Carrying in subtraction in division.
3. Ability to express a remainder properly.

Studies of the type which Denver is carrying on illustrate very well the steps which are necessary if the results of tests are to be used productively in curriculum reconstruction. It is not enough to secure scores and to show that particular grades or individual pupils are above or below the standards. Testing must be followed by analysis. Only in this way can difficulties be located and instruction effectively guided.

REQUEST FOR CO-OPERATION

The Bureau of Educational Research of the Ohio State University is interested in a carefully controlled study of the relative advantages of grade teaching and departmental teaching. For that reason, any information concerning school systems which are about to change either from grade to departmental teaching or from departmental to grade teaching will be appreciated. If superintendents or principals of schools in which such changes are contemplated will communicate with B. R. Buckingham, Bureau of Educational Research, Ohio State University, Columbus, Ohio, they will assist materially in the study of the problem.

B. R. BUCKINGHAM

DETROIT PLATOON SCHOOLS

Those who think of platoon schools as curtailing in any way the educational opportunities of pupils should be induced to make a study of the equipment of the Detroit platoon-school buildings. The following quotation from the *Eighty-Second Annual Report of the Detroit Public Schools* shows the rooms provided in the George Washington Elementary School.

This school is a forty-eight-section elementary school with a full quota of special rooms. It has a capacity of 2,240 pupils. The school is planned to operate as two twenty-four-section platoon organizations under one administrative head. Each organization occupies one-half of the building, and the facilities are so distributed that one organization may operate independently of the other.

The accommodations are as follows:

GROUND FLOOR

4 science rooms	22′×30′	2 playrooms	29′9″×34′
4 literature rooms	22′×30′	2 conservatories	12′6″×16′6″
5 special classrooms	22′×30′	2 girls' toilets	22′×25′
2 music rooms	22′×30′	2 boys' toilets	17′×22′
2 art rooms	22′×30′	3 janitor's rooms	5′×22′
1 sewing room	22′×30′	1 lunchroom	22′×56′
1 library	24′×72′	1 kitchen	11′×22′
1 kindergarten	22′×73′	1 clinic	17′6″×22′
1 manual-training room	22′×42′	1 physical director's room	8′×10′
2 gymnasiums	40′×60′	1 physical director's room	12′×23′
1 auditorium	34′×60′	1 administration office	22′×29′
1 auditorium	37′6″×72′6″	1 teachers' rest room	22′×29′
24 classrooms	22′×30′		

SECOND FLOOR

2 girls' locker rooms	18′×18′	2 boys' locker rooms	11′×15′
2 girls' shower rooms	10′×12′	2 boys' shower rooms	12′×12′

The richness of the curriculum implied in this description is secured at the same time that the school system is conducted with increasing economy. Interesting facts regarding the conduct of the schools are presented in the following interview published by the *Christian Science Monitor*.

In spite of the fact that educational expenditures are growing at a tremendous rate all over the United States, the cost per pupil in the schools of Detroit shows a decrease, according to John F. Thomas, assistant superintendent of the Detroit schools.

"One of the reasons why we are reducing pupil costs," says Mr. Thomas, "is that we are keeping classrooms up to the standard size more consistently than in the past. In previous years we operated as many school systems do today; we practiced the policy of assigning a given number of teachers to a school, regardless of the attendance. Now we keep a careful check. Our standards are as follows: in elementary classes, 40 pupils; in intermediate, 33;

and in high schools, 28. Now and then we are obliged to go above these established standards, but we rarely go below.

"Each year we make a careful estimate of the needs of each school, and the teachers are assigned accordingly. If, for some reason, the attendance is much greater in one school than expected, another teacher is placed there. If the attendance falls off to a marked degree, a teacher is transferred to another school. Some systems I have visited keep teachers where they have been assigned through the entire year, whether a teacher has a class of thirty or of five, apparently forgetting that teachers' salaries form the greatest item in the maintenance budget. A constant check on population shifts is required in order to keep pupil costs down as low as possible.

"In the last few years we have developed a system of handling books and equipment, which, I feel, has been materially responsible for lowering pupil costs. Every year we spend about a half-million dollars on numerous supplies. About $400,000 of this is spent to buy new books and to replace old ones.

"Now, in order to insure an efficient use of these books, we have set up reasonable allowances for each type. One textbook in constant use, for example, is allowed each pupil. If a book is for reference purposes or for supplementary reading, we may allow one to a classroom; if in greater demand, perhaps three to a class. This system was carefully worked out with the aid of a number of teachers and supervisors, so it is eminently fair.

"We do the same thing with other supplies, so that we can account for every article purchased. The old way was to buy a lot of books, pass them around, and then forget about them. Today, if a teacher uses her semester's supplies in a month or so, we make an investigation to discover the cause."

NEED OF PROFESSIONAL TRAINING FOR TEACHERS

The following statement, which was published in the daily press, is based on findings of the Bureau of Education.

"Wanted: Teacher for rural school; woman preferred; salary, $800 a year; high-school graduation and professional training not necessary; low-grade certificate accepted; satisfactory board and room not guaranteed; applicant need not be more than twenty years of age and need not have taught more than one year in the same school."

"What caliber of person would this advertisement attract?" asks William McKinley Robinson, assistant specialist in rural education of the United States Bureau of Education, and yet he says that it describes the average rural teacher in a state that is above the average in educational progress.

"How many of the teachers in the 168,000 one-teacher schools of the United States are of this type it would be hazardous to guess," he continues. "Thousands of them we know are no better. In this are we playing fair with the rural child? Undoubtedly, marked improvement has taken place if we consider the

conditions of a generation or so ago, but that affords little comfort to those who realize that we cannot have good schools without good teachers and that the success of our democracy depends on good schools.

"To assist rural communities in meeting the challenge of a 'well-prepared teacher for every child in the state,' normal-training courses are given in high schools in a number of states. Five—Michigan, Minnesota, New York, Ohio, and Vermont—maintain the work on a post-graduate basis, namely, high-school graduation or its equivalent is required for entrance to the course. Two other states report that they also have practically reached this standard.

"The estimate that about eighteen hundred students were graduated from high-school normal-training courses in 1923–24 assists one to comprehend more fully the influence such courses are having in the preparation of rural teachers. These courses, however, appear to be considered as only temporary expedients. Four of the twenty-six states that have thus far tried the plan have discontinued it, and three others are discouraging the work with a view to its elimination as soon as state normal schools are prepared to supply a sufficient number of better prepared teachers.

"Although there are approximately six hundred thousand elementary-school teaching positions in the United States, the normal schools and teachers' colleges graduated from their normal courses but 40,484 teachers in 1923–24. Half of these graduates are needed yearly to care adequately for the normal increase in the elementary-school enrolment, which leaves approximately twenty thousand teachers trained in normal schools to fill the vacancies caused by those leaving the profession each year. This number would be sufficient to meet the needs if each teacher should remain actively in the profession for thirty years, but not otherwise.

"Realizing the inadequacy of the supply to meet the need, teacher-preparing institutions are anxiously trying to stimulate their enrolment. In 1923–24, 33.8 per cent of the graduates of the state institutions of Washington entered the teaching profession as compared with 24.7 per cent two years previously. During the same period the number of students graduated from normal courses in all the normal schools and teachers' colleges in the United States increased 50 per cent."

A TEACHERS' PROFESSIONAL LIBRARY

The following description of the Teachers' Library of the San Francisco Public Schools is quoted from the April, 1926, number of the *Bulletin of the San Francisco Grade Teachers' Association.*

The Teachers' Library of the San Francisco Public Schools is located, with the Department of Texts and Libraries, in the Old Horace Mann Shop Building at 1147 Valencia Street.

It comprises 2,200 volumes, practically all professional books, and is growing constantly. There is some money available for additions, and, as was stated

in the superintendent's bulletin of March 12, 1926, we shall be glad, when purchasing, to take into account the needs of such teachers as are enrolled for professional courses if they will let us know what they need in the way of reference books.

Two books at a time may be drawn by any teacher in the school system under the same regulations as those in effect in the public library. Books may be reserved by telephone and may be renewed in the same way unless in demand, by calling the library the day the books are due and giving the librarian the complete number found on the back of each book and the name and the school of the borrower.

In order to protect the rights of all, we have thought it best to adopt the accepted library practice of charging a fine of five cents a day for books held overtime. By co-operation, these fines can be entirely obviated.

From time to time, lists of new books added to our collection are published in the superintendent's bulletin.

We shall be delighted to have the teachers of the San Francisco public schools make the fullest possible use of their library and its facilities for study. The hours are from nine to five, excluding the noon hour, Monday to Friday, inclusive, and from nine to twelve on Saturday.

CLASSIFICATION OF PUPILS

Warren W. Coxe, chief of the Educational Measurements Bureau of the State Department of Education of New York, recently made a study which is reported in a bulletin of the department entitled, *A Study of Pupil Classification in the Villages of New York State*. The Otis Classification Test was administered in seventy-two villages in different parts of the state. The results of the study show that there are very striking differences in the standards adopted in the different school systems. The following paragraphs are quoted from the "Final Summary and Conclusion."

Probably the most outstanding fact which one gleans from the preceding discussion is that the thirty-seven villages do not follow any system of classification or grading; that is, there is no generally recognized standard for grouping children. Furthermore, very few of the villages show any definite tendency in this regard. The few that do have any policy or standard with regard to classifying children differ from each other very materially.

Such a condition may be due to the fact that we are in a transition period in which there is a tendency to break away from the rigid yearly promotion and recognize individual differences more fully. The villages have not entirely broken away from the yearly system. A very few villages have based grade standards more upon ability and achievement than upon chronological age.

Two or three villages which have not based their grade standards upon ability and achievement have formed ability groupings within the grades. . . . .

In this study we have compared the records of the villages of New York State with records made by pupils the country over. That comparison indicates that the lower grades are below the standards while the upper grades are above the standards. The lower grades may be below the standards because of poor teaching, because of lower standards of attainment, or because of the inability of the children to do the work. The upper grades may be above standard because of exceptionally good teaching, because the standards of attainment are especially high, or because only the most able children are allowed to reach these grades. It does not seem likely that there is such decided difference in teaching ability between the lower-grade teachers and the upper-grade teachers. Our records tend to show that the mental ability of the pupils in the lower grades is below standard while the mental ability of the pupils in the upper grades is above standard. The achievement of the pupils in these grades is similar to their mental ability. It seems probable that a particularly high standard is being maintained in the upper grades of New York State and that the duller pupils are held back in the intermediate grades.

There will doubtless be differences of opinion concerning the desirability of the standards which have evidently been operative in New York State. Should there be standards of attainment so high that only the most able pupils can succeed? Should standards be made low enough so that most of the children can successfully meet them? These questions cannot be answered here. All we can do is to point out that at present there seems to be a definite tendency in this state to set standards in the upper grades which only the most able pupils can meet.

It might be suggested that, instead of changing any standards, we might have separate grade standards for bright, average, and dull pupils. Such a suggestion will probably seem reasonable to a great many, but the administrative difficulties involved in such an organization are great, and no wholly satisfactory solution has yet been advanced.

THE FIRST PUBLIC SCHOOL OF NEW YORK STATE

The following article appeared in a recent issue of the *New York Sun*.

The story of New York State's first feeble attempts to establish a system of common schools has been brought to light by Joseph Gavit, of the New York State Library, in the course of a careful examination of the Albany *Gazette* of 1796 and is related in a bulletin of the University of the State of New York.

According to the state law of 1795, £20,000 was appropriated for the encouragement of schools. Albany County's share of this sum was £1,590, but in no history of Albany is there any mention of the fact that a school really did exist in that city and continue through the five-year period for which the appropriation was made.

The operation of the system of state-wide education at this time is revealed by a series of interesting notices and advertisements on the subject which appeared in the *Gazette*.

The first mention of the school was an advertisement in the issue of May 29, 1796, which read as follows:

"ALBANY CITY SCHOOL

"Whereas the mayor, aldermen, and community of the city of Albany in Common Council convened, did, by law passed May 17, 1796, institute a school, to be called 'Albany City School,' in which the children of the inhabitants shall be instructed in the English language, English grammar, arithmetic, mathematics, and such other branches of knowledge as are most useful and necessary to complete a good English education; and, for carrying that purpose into effect, did appoint Thomas Ellison, John B. Johnson and Wm. M'Clelland, trustees.

"The trustees so appointed do hereby give notice that they will, on Tuesday, the 5th day of July next, at 10:00 A.M., and in the city hall, appoint a schoolmaster, who shall receive a salary of three hundred dollars per annum, and a schoolmistress who shall receive a salary of two hundred dollars per annum, for discharging the duties of their respective offices; in such building as the trustees shall provide.

"And, as in such appointment, respect will be had only to the testimonials of the good moral character and to the qualification of those who make application, they must attend in person, at such time and place, and previously send their testimonials, postpaid, to the Secretary.

"By order of the Board of Trustees of Albany City School.

"JAMES DONALDSON, *Secretary*

"Albany, May 19, 1796."

Directly under this was an appeal for quarters, worded as follows:

"ALBANY CITY SCHOOL

"Wanted, a house in some convenient and, if to be had, central situation in this city, with accommodations for two schools.

"Apply to James Donaldson, 10 State Street. May 19."

The foregoing advertisements, the curriculum requirements in which are a quotation from the law, appeared weekly thereafter through June 20. On the latter date, however, the salary offered the schoolmaster was increased to $400 a year and that of the schoolmistress to $250 a year. In the "local" column on July 8, 1796, notice was given of the opening of the school on July 11, the terms of tuition to be "one half-dollar per quarter, to be paid in advance."

Apparently there was some difficulty in finding a woman who would become Albany's first public schoolmistress, since an advertisement for a "female teacher of a school for the education of girls in the English language and grammar, writing, arithmetic, and plain sewing" appeared from July 25 to August 26.

The advertisement finally had the desired result, for, on September 20, the *Gazette* reported as follows:

"With the highest pleasure we announce the flourishing situation of the city school, which offers to all the benefit of useful instruction, at cheap rate, according to their several abilities. The school at present consists of seventy scholars and is under the conduct of Mr. Seth Y. Wells and Mrs. Martha Wilson, who are approved competent to the office. On an examination held by the trustees, on Monday and Tuesday last, the scholars acquitted themselves in a manner highly satisfactory, much to the credit of their teachers and of themselves. The economy of the school is precise, as a regular daily account is kept of the attendance, behavior, and improvement of the scholars. A third teacher will be immediately engaged, as it is expected that numerous applications for admission will be made on Monday next."

The manuscript minutes of the common council show that during that year and during at least two succeeding years the chamberlain was directed to pay sums of money to the trustees of the city school.

TEACHERS AND JANITORIAL SERVICES

The Supreme Court of Oklahoma has rendered a decision in the case of a teacher who was discharged because she refused to make the fires and sweep out the schoolhouse. In opposing the suit, the school district asserted that the plaintiff had agreed to abide by the rules and regulations of the district, which require her to do janitorial work.

In his opinion upholding the teacher, Commissioner Jarmar said:

In this connection, counsel for the defendant argue that a generation or more ago the teacher always attended to this part of the work and would look after it personally or have the big boys bring in the wood, build the fires, and, if necessary, sweep out the buildings.

By going back to still earlier days, he can readily recall the old split logs for benches and the big roaring wood fires and the blue-back speller and no thought of janitor service; but all of this offers no reason why, when competent and qualified parties are reducing their contract to writing, they should not be required to incorporate requirements for janitor service in the contract if the teacher is expected to perform such duties.

The defendant had no more right to require the plaintiff to make the fires and do the other menial chores by providing for the same in its rules and regulations, aside from the contract of employment, than it had to require the plaintiff to scrub the walls or paint the building. The defendant employed the plaintiff to teach the school, and this, the jury found by its verdict, had been done by the plaintiff in a proper manner.

It was the duty of the defendant not only to furnish a schoolhouse and equipment but also to make it possible for the school to be taught by making the schoolhouse sufficiently comfortable that the plaintiff could discharge the duties she had contracted to perform.

THE PLATOON SCHOOL—ITS ADVANTAGES

CHARLES L. SPAIN
Deputy Superintendent of Schools, Detroit, Michigan

The purpose of this article is to appraise the platoon school as a practical agency for the realization of modern educational ideals. While some may view this type of school organization as a new adventure in education, as something untried and unproved, it is far from an innovation.

It is almost a quarter of a century since William Wirt organized the first work-study-play, or platoon, school in a small Indiana town. The schools of Gary, Indiana, have been in operation for twenty years. Pittsburgh has been committed to the plan for more than ten years; Detroit, for almost eight years. According to the latest available data, the platoon plan is now in successful operation in more than six hundred schools in more than one hundred cities and towns widely distributed through thirty-three states and having a combined population of more than sixteen million people. In twenty-one cities, including Detroit and Pittsburgh, the plan has been officially adopted by the school authorities.

We are dealing with a going concern. Consequently, in discussing the merits of this type of school, it is not necessary to theorize or to resort to hypothetical situations, for we have accurate data in increasing abundance which clearly reveals not only what is being accomplished but what has been accomplished in platoon schools over a long period of time. It would therefore seem possible for anyone who desires to evaluate the worth of this organization to approach the matter with an open mind, to analyze the facts, and to draw conclusions.

The data on which the positive statements in this article are based are drawn from extensive studies by the Bureau of Educational Research of the Detroit public schools under the direction of Stuart A. Courtis; from research studies in organization and administration conducted by the Detroit platoon department under the

direction of Rose Phillips; from an extended questionnaire study in thirty-five cities made by J. T. Johnson of the Chicago Normal College; from data supplied by William M. Davidson, superintendent of schools, Pittsburgh, Pennsylvania; and from the writer's personal experience of eight years in organizing and administering platoon schools.

In the discussion which follows it is not the writer's intention to approach the question from the point of view of the private or endowed school with its small classes, from the point of view of the experimental school with a favorable environment, or from the standpoint of those who conduct the demonstration schools in higher institutions of learning. Rather, it is the writer's purpose to consider the problem of school organization and administration as it normally presents itself to the superintendent of schools in the average American town or city, with all the limitations and restrictions which this statement implies.

More and more the public schools of this country are coming under the direction of high-class men, men imbued with an earnest desire to enlarge the educational opportunities of the children under their control. Let us assume that such a superintendent is a man of training and vision; that he recognizes the validity of modern social philosophy as applied to education; that he knows the history of education and can view his problems with reference to their origins; and, finally, that he understands educational psychology and the principles of scientific measurement and desires to reorganize his schools on the basis of scientifically ascertained facts rather than on the basis of opinion.

It does not require the vision of a sage to discover that it is a far cry from the conditions which actually exist in any school system to conditions which would remotely approximate the ideal of a progressive superintendent.

While the educational philosopher in the sheltered precincts of college walls may theorize untrammeled by the stern realities of an unthinking world, the superintendent of schools enjoys no such immunity from the laws of cause and effect. His head may be bursting with unsatisfied ideals, but the possibilities of the realization of his ideals are stunted by unrelenting circumstances with which he must

inevitably reckon. The way of the educational innovator is often very hard. His school system is sure to have a certain measure of inertia and complacency in the teaching corps, born of long-continued service in a narrow sphere. Perhaps his public, in common with the publics in many cities, may still have the idea that teaching the three R's is the chief function, if not the only function, of the elementary schools. Doubtless he hears the voice of the taxpayer demanding better schools at reduced cost, and it is not unlikely that he senses the presence in his community of disgruntled parents, politicians, or teachers who are waiting eagerly for a turn in events which may be used to embarrass the head of the schools.

In the quiet of his study a superintendent may contemplate with satisfaction the merits of the project plan, with its complete abandonment of formal class instruction, or his interest may be challenged by the ideals of complete individualization of instruction in the fundamentals as practiced under the Dalton and Winnetka plans; but it is only rarely that a superintendent can see his way clear to make the extreme and radical adjustments necessary to develop either of these plans in his school system.

Although one of the greatest obstacles to the introduction of modern methods is the restraining influence of the traditional school organization, which tends to hold all school activities in the formal-discipline mold, many superintendents, accepting this situation as inevitable, feel it necessary to temporize with the old organization, to patch it up here and there, and to relieve the overloaded classroom instructors by employing teachers of art, music, and physical education, who work in the classroom while the regular teachers are idle—a plan which is at once expensive and ineffective. It is because they are not willing to rest content with such halfway measures for solving their problems that many superintendents have looked on the platoon school with favor.

The essential feature of the platoon plan is a duplicate use of all the facilities of the school, making possible a balanced program in which the social and cultural aspects of the curriculum as well as the fundamental knowledges and skills may receive a full measure of emphasis. This plan also permits the abandonment of the idea of "a reserved seat for every pupil" and thus greatly increases the capacity

and the efficiency of the school plant. Furthermore, the platoon plan is superior to the traditional plan because, with its varied facilities and its greater flexibility, it adapts itself readily to curriculum changes and permits each community to develop schools with a distinct individuality.

While platoon schools vary in their range of activities and in their emphasis on the several aspects of the curriculum, they recognize, in general, that there is a body of knowledges and skills which must become the possession of every child. It is certain that the public does not desire and will not permit the lowering of standards in this field. Therefore, the platoon school, in common with its predecessor, must assure to every child a satisfactory amount of knowledge and skill in what we have come to call the common essentials. The platoon school also recognizes that the curriculum must include a highly important group of self-expressive and socialized activities, for which the traditional school seldom makes adequate provision. It is in providing both a definite time and place and trained instructors for this aspect of the modern curriculum that the platoon school renders an important service.

The general scheme of a platoon school is familiar. The pupils are divided into two alternating groups. While one group pursues its work in the "home" rooms, the members of the second group are participating in the activities of the auditorium, the gymnasium, the playground, the library, the nature laboratory, and the art, music, literature, and industrial-arts rooms.

In the home room the atmosphere and conditions closely resemble those of any well-organized modern classroom, with the exception that the home-room teacher devotes herself entirely to reading, writing, spelling, English, and arithmetic and assumes no direct responsibility for the special kinds of instruction.

It is significant to note that, in shifting from the old organization to the new, none of the worth-while qualities of the old have been lost. The pupil spends at least one-half of the school day in the home room. Here there is the personal contact of pupil with teacher which insures the teacher's interest in the pupil's progress and welfare. Here the pupil receives from the teacher the mothering which the traditional school has always given. There are those who hold

that in a platoon school the child loses the personal touch. Such persons, however, are driven to make an exceedingly fine distinction when they claim that the child in the platoon school who remains with one teacher for two and one-half or three hours a day loses the personal contact while the child in the traditional school who remains with one teacher for four or four and one-half hours a day retains it.

The home-room teacher in a platoon school, freed from the worry of attempting to do work for which she has neither taste nor aptitude, becomes a more efficient teacher of the three R's. There is an abundance of research data from Detroit, Pittsburgh, and other cities which prove without question that in platoon schools instruction in reading, writing, spelling, and arithmetic not only does not lose in effectiveness but actually gains and that platoon schools show fewer failures and a lower rate of retardation.

The auditorium, the library, the gymnasium, the nature laboratory, and all the special departments of a platoon school are directed by trained teachers who have elected to give instruction in these special fields. Thus, a child on the playground or in the gymnasium is under the guidance of a trained teacher of physical education; in the nature laboratory, with its conservatory, its aquarium, its display cabinets, and its favorable environment, the pupil learns to understand and appreciate nature under the eyes of a nature enthusiast. In a like manner, in the auditorium, the library, and the art, music, and literature rooms, the pupil finds himself under the sympathetic guidance of teachers who have been selected because of their peculiar fitness for the particular kinds of work.

Because the platoon school provides a definite time, a suitable place, and a trained teacher for each of the special activities, it offers assurance to every pupil that music, art, play, library, and all the desirable social and cultural experiences shall receive full consideration. Too often in a one-teacher school, time which is officially reserved for these activities is curtailed or entirely appropriated for instruction in some of the formal subjects.

The segregation of instruction in special rooms should also appeal to the practical administrator, because it makes for economy and efficiency. Money spent in fully equipping a single art room is more

economically used than the same amount spent in distributing partial or duplicate equipment through all the classrooms of the school.

There is a sharp distinction between the aims and methods of the home rooms and the aims and methods of the departments which are set apart for special kinds of instruction. The purpose of the home room is avowedly to help the pupil to acquire knowledge and skill, to master facts, to attain a reasonable standard of achievement, to test and measure his own progress in finite terms, and to progress at his own rate. A very different purpose motivates the instruction in the special departments. Here the purpose is not mastery of skills or knowledges; there are no tests, no attempts to measure progress in numerical terms or to exact from each individual the same standard of achievement. Quite the reverse. The aim is to permit each child to participate with his fellows in group undertakings, to give play to his own individuality as he enters into co-operative work with others, to give him opportunities for creative expression, and to bring him under the influence of good music, good art, good literature, and good books. The anticipated outcome of his experience in special rooms is the development of desirable ideals, attitudes, and appreciations.

In the auditorium the platoon school has introduced a new educational unit of great promise. Reference is made here not to the occasional school assembly in which large numbers participate but rather to the daily period in which each pupil goes to the auditorium with a group of his companions to participate informally in socialized activities. Platoon-school auditoriums offer to pupils an extensive variety of self-expressive and audience situations, including exercises in singing, dramatics, operettas, pageants, dances, music appreciation; safety, health, and civic clubs; special-day celebrations; and talks and lectures by persons of prominence from the community or abroad. The auditorium comes in response to the demands of our social philosophy. It is not only the common ground on which community and school may meet and interpret their ideas to each other but also, in a school with such a varied and extensive range of activities, a correlating and integrating unit—a clearing house for the entire school.

While the claims of the platoon school as based on its measurable

product must be clearly recognized, its best claim to favor rests on certain indirect and related outcomes which are difficult to measure objectively but which nevertheless are clearly reflected in the lives of those whom the organization directly affects.

Let us turn first to the one for whom the whole scheme of education has been devised—the pupil. How does he react to the platoon school? All available data record the pupil as overwhelmingly in favor of this type of school. In letters and contributions to school papers he expresses with satisfaction his relief from the monotony of the one-teacher school; he likes the variety and the opportunity to work for a time at one piece of work and then to move on to new surroundings and undertakings, to which he may look forward.

With regard to principals and teachers, it may be said that the success and the popularity of the platoon schools have been due in a large measure to their enthusiastic support. The records of Pittsburgh and Detroit show that no teacher who has once taught in a platoon school has asked to be transferred to a school of the traditional type. This favorable attitude in the case of the teachers may be attributed in part to the fact that in a platoon school the teachers are more advantageously placed and can do the work which they prefer and in part to the variety and change in the day's activities which has produced such a favorable reaction among the pupils. At any rate, there is evidence from many quarters that the psychological effect of the general introduction of the plan has been to improve the morale of the teaching corps, to encourage more teachers to prepare to use their special talents, and to give new inspiration to many teachers and principals who, under the old plan, were in a rut.

With regard to the parent, the available evidence shows that he takes his cue largely from the attitude of his children. If they are happy and contented and make good progress, the reaction of the parent is almost certain to be favorable.

In Detroit none of the old schools are made platoon schools until the parents request it. Petitions received from twenty-four districts show that from 85 to 98 per cent of the parents in these districts favor the introduction of the new plan.

There still remains for consideration the matter of cost. This aspect is considered last because, if the platoon school is not sound

educationally, we have no right to urge it at any cost. If, however, it can be approved on educational grounds, then the question of cost becomes a matter of great moment.

The comparative cost of platoon and non-platoon schools is a local question which must be settled in each community on the basis of the facts. Although the data from various cities indicate that platoon schools cost less, or at least no more, than the old schools, it is not possible to make broad generalizations as to relative costs.

So far as the Detroit school system is concerned, the facts with regard to cost are as follows: (1) Although the new platoon-school buildings include almost every desirable facility, the per pupil cost of constructing the schools is not as great as the per pupil cost of constructing schools in other cities in the Middle West of comparable size in which the traditional plan prevails. This is proved by the results of the Cincinnati municipal survey and a recent report of the Research Division of the National Education Association. (2) The introduction of the platoon plan into seventy-five new or remodeled Detroit buildings has resulted in an average increase in capacity of about $33\frac{1}{3}$ per cent. When the plan is inaugurated in old buildings in which no remodeling has been done, it results in an increase in capacity ranging from 5 to 25 per cent. The increased housing capacity in the Detroit elementary schools as a result of the introduction of the platoon plan now amounts to about twenty thousand. On the basis of thirteen hundred pupils per school, to replace this saving in capacity would require the erection of fifteen twenty-four-section buildings at a total cost of more than $6,500,000. (3) While the total cost of equipping a platoon school with its special rooms is greater than the total cost of equipping a non-platoon school, the per pupil cost is lower on account of the increased capacity. (4) Finally, in changing twenty-four old schools from the non-platoon type to the platoon type, it has been possible to increase the length of the school day and in a majority of instances to increase the membership in the building or to decrease the required number of teachers, or both.

In its educational product, in its psychological effect on pupils, teachers, and parents, and in its building and instructional costs, the platoon school has justified itself as an efficient form of school organization.

This article would not be complete without reference to some of the matters with regard to which there are differences of opinion. The discussion of the merits and demerits of the platoon school has developed a peculiar situation. Its proponents not only have theories but over a period of years have exemplified these theories in hundreds of schools which are now serving satisfied constituencies. On the other hand, the opponents of this type of organization, never having experimented with platoon schools and having no comparable body of data to offer in rebuttal, insist on carrying the discussion into the field of theory. In their minds, the crux of the situation lies in their objection to the use of special teachers in the socialized activities. They hold that there can be no true progress unless a child receives all his instruction from one teacher. They assert, in effect, (1) that it is not unreasonable to expect a teacher to be responsible for all the activities of an elementary-school child; (2) that purposeful teaching—the pursuit of projects—is not possible in a departmentalized school; (3) that the employment of special teachers even in play, library, and auditorium (*a*) makes unity in a child's experience impossible and (*b*) forces the teacher to teach subject matter instead of children. The advocates of the platoon school sharply take issue with all these contentions.

With the one-teacher plan we are all familiar. We have used it for generations. In considering its merits, it is well for us to hold firmly to the thought that the burden of schooling the rising generation rests not upon the exceptional and gifted teacher but upon the ordinary average individual of whose merits and limitations we are perfectly aware. This is the individual whom we must keep in mind as we contrast the two plans of instruction.

Is it reasonable to suppose that the average teacher can, in justice to her pupils and herself, make those chameleon-like adjustments which would make her at once a good teacher of reading, writing, arithmetic, spelling, history, geography, penmanship, and language and at the same time permit her to guide a child in his activities in nature study, auditorium, library, drawing, art, music, play, and vocational arts?

The social and industrial world makes no such demands on its servants. With the broadening of the horizon of human knowledge, the Jack-of-all-trades has disappeared, for he would be useless were

he here. In his place has come the specialist, with his ability to render a high degree of service in his chosen field. If the school is to be "a miniature of society," why is the specialist out of place in the school? The child is perfectly familiar with the specialist in his out-of-school life. He sees and understands the special service rendered by the milkman, the postman, the barber, and the butcher. Why should it disintegrate his experience to free him from the apron strings of his classroom teacher and let him go to the librarian for his books, to a health teacher for his play, to an art teacher for his posters, or to an auditorium teacher for his dramatics? Certainly we should try to "put together the things that belong together" in a child's experience, and there should be sympathetic understanding between teacher and teacher, but the one-teacher school, because of the isolation of one room from another, makes little demand for teacher co-operation. On the other hand, the platoon school, with its specialized departments, not only encourages but demands teacher co-operation in order to attain the ends for which the school is created. If the teaching in the school develops purposeful activity and the teachers are working in harmony, the child, as he goes from room to room, has within himself the integrating element which will preserve the essential unity of his work.

To the claim that platoon schools cannot use the project method, it may be replied that it is perfectly reasonable to believe that a child will pursue his purpose beyond the point where any one person can assist him, because he does this constantly in his daily life. The Detroit platoon schools make use of projects. Our files contain records of scores of them, largely group projects, involving a number of the departments of a school. That purposeful activity of this sort can be carried on in platoon schools has been demonstrated, at least to the satisfaction of those who conduct such schools.

One of the interesting arguments advanced against the platoon plan is that departmentalization in special subjects compels a teacher to teach subject matter rather than children. There is much fallacy in this contention because the gymnasium, the playroom, the library, the auditorium, the nature laboratory, and the music, art, and industrial-arts rooms have very little subject matter in the sense that it is something to be learned. The activities of all these rooms

are informal, and the pupils are largely engaged in the pursuit of individual or group projects for which the motive lies outside the subject itself. Further, it is pertinent to inquire why, if a teacher understands and loves children, she will be less a teacher of children if we assign her the kind of work for which she is best fitted and which she prefers to do. If a teacher does not understand children and tends naturally to teach subject matter, how can we make her a teacher of children by assigning her fifteen or twenty subjects to teach?

Two other criticisms deserve consideration: (1) It has been charged that the platoon plan overstimulates the children and places them under a severe nervous strain. (2) Frequent mingling of pupils spreads contagious diseases. To the first criticism, Dr. Kerr, health officer, Department of Education, Pittsburgh, replies, "Criticisms of overstimulation and fatigue have turned out to be nullified by the fact that there is more open air, less prolonged sitting, more diversified interests helping to resist nervous trouble, and more exercise due to changing rooms." His sentiment is echoed by an overwhelming number of principals, teachers, and parents who are familiar with platoon schools. With regard to the second criticism, the health department of the city of Detroit, after a careful survey of the contagious-disease situation, was able to establish no connection whatever between platoon schools and the prevalence of contagious diseases among school children.

In conclusion, the writer bespeaks for the platoon school the serious, dignified consideration to which its achievements, past and present, entitle it but which it has not always received. Not since the days when Horace Mann threw down the gage of battle to the Boston schoolmasters in behalf of the traditional grammar school has any innovation in education aroused such a show of intolerance and animosity as has the platoon school. It has been used as a political football in New York; it has been misrepresented and ridiculed by the teachers' federations of Chicago and Milwaukee; and even among educators of standing it has frequently been ignored or treated with scant courtesy.

However, any movement which is fundamentally sound will thrive and grow strong in spite of opposition. So it comes about that

after more than twenty years this organization is today more generally and more widely used than ever before. Furthermore, it now numbers among its circle of friends and supporters many educators of national prominence and standing. A partial list of superintendents who either are avowed advocates of the platoon plan or have assumed a hospitable attitude toward it includes Superintendents McAndrew of Chicago; Broome of Philadelphia; Cody of Detroit; Jones of Cleveland; Davidson of Pittsburgh; Potter of Milwaukee; Corson of Newark; Weet of Rochester; Rice of Portland, Oregon; Newlon of Denver; Hartwell of St. Paul; Glenn of Birmingham; Crozier of Dallas; Stetson of Dayton; Reed of Bridgeport; Reid of Youngstown; Studebaker of Des Moines; Cammack of Kansas City; Ward of Wilmington; Lewis of Flint; Claxton of Tulsa; Borden of South Bend; Wirt of Gary; Drake of Kalamazoo; Risley of Pueblo; Bair of Colorado Springs; Hughes of Sacramento; Pickell of Montclair; and seventy-five others. This list includes many of our wisest, sanest, and most experienced superintendents—men who could not be induced under any circumstances to associate themselves with a movement which they did not believe to be educationally sound.

The platoon school is not offered as a panacea for all educational ills. It merely takes conditions as they are and makes them very much better. While it does not satisfy to the full the demands of extreme educational theorists, it does permit and encourage individualized instruction and the use of individualized material, group instruction, socialized recitation, pupil participation, ability grouping, measuring, testing, and all the agencies and devices known to the best current educational practice.

Finally, the platoon school should appeal to practical school men because it opens a way by which a superintendent, while preserving the equilibrium of his school system and the good will of his community, can develop an organization which effectively meets the requirements of the modern elementary curriculum.

SUMMARY OF ARITHMETIC INVESTIGATIONS (1925). II[1]

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This is the second of a series of two articles in which the investigations of arithmetic made during the year 1925 are summarized. The first article, which appeared in the May issue of the *Elementary School Journal*, contained an annotated bibliography of fifty-eight titles and a summary of those references which deal with the curriculum and with textbooks and practice exercises. The remaining references in the bibliography will be briefly summarized in this article.

TESTS AND MEASUREMENTS

Studies which report merely routine applications of tests are not included in the bibliography. However, there are seven references which deal with the construction of new scales, with the experimental evaluation of old scales, or with constructive criticisms of tests now in use.

Foran (16, 17) has reported the construction of a new diagnostic scale. The first half of his report is devoted to a critical discussion of principles involved in arithmetical measurements and of methods used in the construction of tests and scales. In the second half of his report he describes the construction and standardization of his new scale. Part I of this scale contains forty-six examples; Part II, fifty-eight examples. Each part has three forms. In order to eliminate the reading difficulty, the arithmetical processes to be carried on are indicated by signs rather than by words. In standardizing the scale, Foran used data secured through testing approximately ten thousand pupils. A classification of errors in the four fundamental operations is provided for the aid of those who desire to use the scale for diagnostic purposes. The report includes tables which show the type and the number of errors made in each grade from the second to the eighth.

[1] Reprints of this series of articles may be purchased from the Department of Education, University of Chicago, for 20 cents each.

Buckingham (6) has made a report of the progress in his project of selecting and evaluating problems in arithmetic. Although the problems which he has collected have not been formulated into a scale, his description of the difficulties encountered in such a formulation throws light on some significant problems in the selection of materials for testing purposes.

The degree of variability in successive repetitions of tests in arithmetic has been studied by several investigators. Clark and Vincent (12) studied the variability of eighty-seven children in Grades V and VI in speed and accuracy in addition. Using four-minute periods of practice for twenty-two successive school days and examples in addition consisting of single columns of nine digits, they found a variation of 1.3 examples or more in the median number of correct additions. They also reported that the amount of variability in single-column addition tended to increase with an increase in the intelligence of the subjects. In another part of their study they found that, in the case of the four forms of the Woody-McCall Mixed Fundamentals Test, the median number of examples worked correctly was fairly constant, showing a variation of not more than 1.1 examples in the grades tested. However, they found that the amount of work done during the first five minutes varied considerably, the extent of variation being five examples in one class and four examples in another. The effect of an active time limit on variability is worth serious consideration by those who are constructing tests.

Woody (57) has reported an investigation of the effect of successive repetitions of certain arithmetic tests. He found that, "based on the average scores, the gain from four successive repetitions of the Woody-McCall tests was 4 per cent; from the Courtis supervisory tests, 8 per cent; from the Courtis research, 26 per cent. The gains based on the medians were 2 per cent for the Woody-McCall, 3 per cent for the Courtis supervisory, and 11 per cent for the Courtis research tests" (57: 78). Woody found the four different forms of the three tests to be of approximately the same general difficulty, although the variation in scores was greater in certain grades than in others. One significant conclusion which could doubtless be applied to other tests is given in the following statement.

The variation in the educational quotients obtained from the scores of the Woody-McCall and the Courtis research tests was so great that it seems folly to apply the educational-quotient technique until the reliability of the original measures has been more thoroughly established [57: 79].

On the basis of test results, Patterson (41) has reported a general loss in ability in arithmetic during a summer vacation. In order to offset this type of loss, she suggests that schools give a period of intensive drill at the beginning of the autumn semester. A firm foundation in speed and accuracy will thus be laid before an attempt is made to build up on the work of previous years.

In a critical discussion of the influences of standardized tests, Smith says that the reform in arithmetic "would proceed more rapidly if it were not that nearly all of our current tests include a considerable amount of material that has been recommended for elimination by all who have given the subject serious thought" (47: 333). He supports his criticism by numerous illustrations, the chief burden of the criticism being that test-makers have not given due consideration to the social uses of arithmetic.

NATURE OF ARITHMETICAL PROCESSES

Two of the studies listed in the bibliography deal with the nature of the early stages of the number process. Douglass (15) made an experimental study of the number perception of children of preschool and kindergarten age. By adopting methods similar to those which were employed by Howell, Douglass attempted to discover the nature of the development of the perception of different groups of objects, varying in size and arrangement.

Another investigation dealing with the early stages of number consciousness is a laboratory study reported by Judd (25), who has made comparisons of the nature of the counting process in the case of children and adults. By means of elaborate apparatus, he has noted the difference between counting in the abstract and the counting of objects, sounds, and flashes of light. The detailed analyses which he was able to make by the use of apparatus throw much light on the nature of the counting process. The article is merely a preliminary report of an elaborate set of experiments which are to be described fully at a later date.

Two of the studies listed in the bibliography deal with the relative difficulty of the number combinations. Batson and Combellick (1) have determined the relative difficulty of the various number combinations by measuring the time required to work each separate combination. Eighty-three subjects were used in the experiment, all of whom were above the level of the elementary school with the exception of one, who was in the sixth grade. The experiment covered only the processes of addition and multiplication, but each of the one hundred combinations was included in each case. An analysis was also made of the errors which were found. The results obtained must be interpreted in the light of the fact that the subjects were adults rather than children. Buckingham (8) has reviewed the published studies on the difficulty of the number combinations and discusses the question of the use of the findings. He points out four particular ways in which the facts discovered may be of value to the teacher.

The question of adding upward or downward has been discussed by Buckingham (7). He presents some data from college students with regard to preferences in adding upward or adding downward. He has tabulated their judgments as to the reasonableness of the method which each prefers and the extent to which the preferred method is the result of teaching. He then points out certain reasons why downward addition seems superior to upward addition and calls attention to the need of experimental study to determine which direction is better. The significance of this problem rests in the fact that drill and practice materials must be constructed to be added either upward or downward. If they are added in the direction opposite from that intended, the type of drill which was planned will be entirely destroyed. The chief need, therefore, seems to be for agreement on one direction. If experimental study will show any real advantage in one direction as compared with the other, it is obviously important that agreement should not be reached until the advantages of one method of adding are shown.

Six of the investigations included in the bibliography were concerned with problem-solving or with processes related to problem-solving. Stevenson (50) lists six of the principal causes of failure in problem-solving, namely, "(1) physical defects, (2) lack of mentality,

(3) lack of skill in fundamentals, (4) inability to read, which, of necessity, affects the ability to read arithmetic problems, (5) lack of general and technical vocabulary, and (6) lack of proper methods or technique for attacking problems" (50: 95). Illustrations of the various difficulties are given. Those relating to a lack of general and technical vocabulary throw light on the nature of the child's processes. The word "area," which is continually used in the problems from the fifth to the eighth grade, was misunderstood by a great many pupils. In attempts to define and give examples of the word "area," the following typical statements were submitted by pupils in Grades V–VIII.

1. Is a stretch of land, $7.32+25=7.57$.
2. The sum you get when you add different lands, 1 acre+2 acres=3 acres.
3. Length and width added together, 2 ft. long+3 ft. wide=3 ft. area.
4. Distance around a thing, 6 ft. long$\times 2=12$; 4 ft. wide$\times 2=4$; 8 ft.+12 ft.=20 ft.
5. Answer to subtraction problem, $3-2=1$.
6. Distance of anything, 6 miles+4 miles+3 miles=13 miles.
7. How big or how tall you are.
8. Number of miles.
9. Width of a field.
10. The number of feet in a mile.
11. The number of people that live in the United States.
12. If you see how many feet you have and then divide, you have the area.
13. Means population.
14. The number you get when you divide.
15. The numbers that are added.
16. Means to find the sum, 24 acres+60 acres+19 acres=103 acres; how big across, and up and down.
17. The size of anything, 24 ft.+24 ft.=58 ft.
18. Area is 55 feet below sea level.
19. Width or length of a room.
20. Is the boundary of a country [50: 99].

Osburn (40) has made a study of the reading difficulties encountered in arithmetic. He lists the nine following causes of misunderstanding.

1. Lack of vocabulary.
2. Failure to read or see all the elements in the problem.
3. Failure to resist the disturbance caused by preconceived ideas.
4. Inability to read between the lines.

5. Failure to understand fundamental relations, particularly those of the inverse type.
6. Failure to make a quick change of mental set.
7. Failure to generalize or transfer meanings.
8. Failure to interpret cues correctly.
9. Responding to irrelevant elements [40: 8].

Another study of the effect of difficulties in reading on success in problem-solving was made by Lessenger (29). He found that in a mixed-fundamentals test many children made errors because they did not read accurately the directions indicating the nature of the processes. By allowing full credit for all examples solved correctly, regardless of whether the operation actually used was the one called for in the printed instructions, he found that the loss in score due to faulty reading amounted to from 6.1 to 10.1 months of arithmetic age. When special training in reading arithmetic problems was given, the amount of error due to this cause was greatly reduced. In the case of one group of sixty-seven children the gain due to improvement in reading amounted to 9.1 months of arithmetic age.

Morton has written a series of articles (32, 33, 34) dealing with the solution of arithmetic problems. He first administered a problem-solving test and tabulated the errors from the pupils' test papers. These errors were analyzed carefully in order to determine their causes so far as possible. In spite of the limitations of this method, some significant facts were pointed out. The series of articles concludes with a number of case studies, in which extensive descriptions are given of the processes carried on by individual pupils. One interesting result of Morton's study is the high correlation shown to exist between ability in the fundamentals and ability in problem-solving. "It was found that the scores on the arithmetic-fundamentals test correlated more highly with the problem scores than did any other measure, except that secured by the verbal-intelligence test" (33: 188).

Bradford (2) has reported a study in which a group of children were given a series of arithmetic problems impossible of solution. The purpose of the experiment was to determine how many of the children would show genuine critical thought in discovering that the problems could not be solved and how many of them would simply

go through the formal manipulations without recognizing that the problems were "duds." The following problem is typical of those which were employed.

> How fast is a cloud moving across the sky if from my bed I watch it cross my window one yard wide in 1 minute? Give the answer in miles per hour [2: 9].

On the basis of his experiment, Bradford concluded that many right answers are obtained under ordinary classroom conditions not as the result of genuine critical thought but as the result of suggestion. On the other hand, when the pupils were told that some of the problems were impossible of solution and were required to make critical reactions to them, the number of correct answers showed a substantial decrease. The experiment is of particular interest in view of the improvement in critical thinking which is commonly supposed to result from solving problems in arithmetic.

DRILL

During the year 1925 a great deal of emphasis was placed on the study of the amount and character of drill in arithmetic. A comprehensive plan for the organization of drill has been outlined by Knight in his section of the report of Wilson's committee (56). His plan includes the eight following provisions: (1) Drill should be on the entire process. (2) Drill should come frequently in small amounts. (3) Each unit should be a mixed drill. (4) Drill should have time limits. (5) Drill should have accuracy standards. (6) Examples in a unit of drill should be in the order of difficulty. (7) Drill units should include verbal problems. (8) Drill should facilitate diagnosis. Under these eight headings the author has presented one of the most carefully worked-out programs of drill which is to be found in the literature of arithmetic. A brief discussion of a part of the same material is given in another study (26).

Newcomb (38) has reported an experiment employing drill cards which provide practice on the combination of each number from 1 to 10 with each number from 0 to 100. The set of materials contained a total of approximately four thousand drill examples. The drills were carried on for five or six minutes daily for a period of thirty-five days. The subjects were seventh-grade pupils in an experimental

class and a control class. The results of the experiment showed that the drill class gained 5.2 times as many points in accuracy in addition as did the non-drill class; in the case of some processes the gains were even greater. The author points out "(1) that systematic and proportionate drill upon combinations with higher decades, so universally neglected, as well as upon the fundamental combinations affords a type of drill which will yield excellent results; (2) that drill upon combinations of 'seen numbers' with 'thought numbers' is a valuable method of drill, especially in preparation for column addition; (3) that special drill upon difficult combinations or an over-drill upon certain ones, is to be desired; and (4) that the particular method of drill used, while not all-sufficient, is economical of time and effort for both teacher and pupils in providing the type of drill indicated above and in bringing about a realization of desired results (38: 131).

The effect of drill on verbal problems has been studied by Greene (19). Class exercises were provided in which the pupils were required to select the process necessary for the solution of each problem but were not required to do the actual work necessary to obtain the answer. An experimental class was given a considerable amount of practice in this type of work; in the case of the control class the regular school procedure was carried on. The results of the experiment showed a marked improvement in the case of the experimental class. The improvement consisted both in a gain in selecting proper principles and in a gain in obtaining correct answers. Greene concludes that "at least some of the steps in problem-solving might be largely reduced to a drill procedure, from which greatly increased efficiency of instruction may result" (19: 40).

Hamilton (20) is very skeptical of the value of providing drill in the case of reasoning examples and, to a very considerable extent, of the value of drill on the fundamental operations. Commenting on Greene's experiment, Hamilton expresses himself as follows:

> Every problem is less of a problem to the extent to which it can be solved by memory of the methods by which similar problems have previously been solved. The expression "drill in problem-solving," which some writers have employed, is therefore a misnomer, for, in so far as previous experience—in the form of the "drill" referred to—enables an exercise to be solved, that exercise is not a problem [20: 139].

Hamilton is also critical of the commonly stated opinion that "it is wrong to make a child think two thoughts to get a given sum when one will do." He contends that, if one of the objectives of teaching arithmetic is the attainment of the ability to think, it may be better for the child to think two or three thoughts in places where "one will do." He also criticizes Osburn's proposal that 1,470 combinations should be reduced to habit responses. The validity of Hamilton's criticisms depends somewhat on the chief objective in the teaching of arithmetic. If the chief objective in the teaching of arithmetic is the attainment of ability to work examples and solve problems correctly, his criticisms are open to question. Even if the chief objective in the teaching of arithmetic is critical thinking about arithmetic, his criticisms are of doubtful validity. Obviously, the latter objective is not foremost in the minds of most of the teachers of arithmetic. In any case, it would be economical to reduce to habit as many simple responses as possible in order to have an unhampered opportunity to apply "insight" to the really complex problems which arithmetic presents.

Ludeman (30) has studied the relative effects of speed and scholarship on accuracy in arithmetic. He found a low correlation between general scholarship in other school subjects and accuracy in arithmetic and a considerably higher correlation between speed and accuracy. As a result of his experiment, he maintains that the large number of difficulties encountered by elementary-school teachers in their arithmetic classes is the direct outcome of a neglect of the proper amount of drill. The right amount and kind of attention paid to drill will determine the speed of the pupil's work, and accuracy is a natural concomitant of these two factors" (30: 524).

STUDIES OF INDIVIDUAL DIFFERENCES

Interest in individual differences is evidenced by a number of diagnostic studies which attempted to discover the particular difficulties experienced by the child in working examples or solving problems. Curiously enough, most of these diagnostic studies proceeded by making use of group tests rather than by making direct contact with the individual child. In only a few instances have case studies been reported in which direct contact with the child has been estab-

lished and the characteristics of his work determined through observation rather than through inference based on the errors found in the test papers. The diagnostic studies reported have dealt with both the fundamental processes and reasoning.

Among the studies which have dealt with the fundamental operations, that by Yeager (58) shows some interesting differences in the progress made by pupils in learning the number combinations. Yeager presents a diagram (58: 302) showing the progress made in memorizing forty-five number combinations over a period of nine weeks. The variation in the rate of progress gives a clear indication of the type of individual differences exhibited. The rate of gain shown in the first third of the experiment gives little indication of the rate which might be expected in the last third.

Leech (28) has reported the types of errors which second-grade pupils made on two tests. The tests used were the Peet-Dearborn Progress Test in Arithmetic and the Cleveland Survey Arithmetic Test. The errors observed are tabulated as to general and specific types, and the frequency of each error is given instead of the total number of errors. The nature and the frequency of the errors made on both tests are shown in the following table (28: 274).

	Per Cent
Wrong process	15.8
Placing decimal point	7.8
Wrong operation	5.4
Subtraction combinations	4.8
Column addition without attention span	4.8
Subtracting mixed number	4.3
Reducing fractions to lowest terms	4.2
Subtraction combinations	3.7
Multiplying integers by fractional forms	3.7
Not reducing fractions and decimals to same form	3.6
Division combinations	3.5
Copying or writing numbers	3.4
Column addition with attention span	3.4
Unskilled estimating	3.0
Subtracting or multiplying in division	3.0
Carrying difficulty in multiplication	2.8
Incomplete operation	2.6
Zero difficulty, multiplication	2.2
Borrowing difficulty, subtraction	2.0

Myers (35) has made some interesting analyses of errors in arithmetic, his study of the recurrence of errors being of particular value. His findings are of special importance in view of the rather common practice of initiating drill without first determining whether the child is making correct combinations and using correct methods. Without these precautions, drill may set up and fix more firmly poor habits which it will be difficult to overcome.

With respect to individual differences in problem-solving, the studies by Morton (32, 33, 34) and Stevenson (50) are worth careful examination. The case descriptions given by Morton (34) are the result of a type of analysis which seems necessary for a full understanding of the processes employed by a given pupil. The individual differences in methods of work indicated by such case studies make possible a much more thorough understanding of the type of remedial measures necessary in a particular case. Stevenson's findings, showing individual differences in the understanding of arithmetical terms, indicate the necessity of diagnosing the work of the individual pupil to the point where his difficulties are clearly appreciated by the teacher. The few illustrations of individual differences in problem-solving which Stevenson gives indicate the value that might be derived from a thorough and extensive study of the methods actually employed by children in solving problems.

METHODS OF TEACHING

Although a considerable amount of the material on arithmetic published during 1925 deals with methods of teaching, a comparatively small part of it is experimental or quantitative in character. In the case of this particular topic, the appeal to authority is still strong, and few of the "authorities" seem to feel any obligation to present objective evidence supporting their dictums. The few isolated experiments which were reported serve chiefly to indicate the need for more objective evidence with regard to the relative merits of various methods of teaching arithmetic.

The merits of various methods of subtraction are discussed by Knight, Ruch, and Lutes (27, 44), who frankly recognize the lack of experimental evidence to show which method is best. In the ab-

sence of convincing scientific evidence, the best that the teacher can do, according to these writers, is to evaluate the methods which are in use according to the best evidence available, which is admittedly meager. The writers (27) present a frankly partisan defense for subtractive subtraction and for the borrowing technique. In view of the lack of scientific answers to many of the questions of method in arithmetic, the technique of evaluation which they applied to the methods of subtraction is worth careful study. Their technique involved a setting-up of certain criteria by which the various methods of subtraction were studied. The thirteen criteria used are as follows:

1. Which method allows the most helpful transfer from previously learned skills?
2. Which method avoids the most negative transfer or interference from skills previously learned or to be learned subsequently?
3. Which method uses the simplest process?
4. Which method carries the most useful contributions to other aspects of the total subject?
5. Which involves the mastery of the fewest facts?
6. Which can be carried farthest into more complicated skills with reasonable ease?
7. Which can be most adequately rationalized?
8. Which admits of the most effective drill devices?
9. Which contributes best to thinking in problem-solving situations?
10. Which admits of better checks?
11. Which can be best illustrated by object teaching at the beginning of the instruction?
12. Which seems to be the most natural?
13. Which is defended by experimental evidence? [27: 159].

In conclusion, the authors state that, for the present, a choice of methods of subtraction must be based on theory; that the theory underlying the subtractive and borrowing methods is superior; and that, pending experimental evidence, one should apply good theory rather than questionable theory.

A comparison of two methods of problem analysis was made by Clark and Vincent (11), who subjected the conventional method of analysis and a so-called "method of graphic analysis" to experiment in the case of seventh- and eighth-grade pupils. They found that many pupils solve problems without resorting to the conventional

methods of analysis and that the results of the graphic method are considerably superior.

Jones and Jones (24) have described a new method of multiplication. They state that they observed a trial of a method "originated" by E. D. Phillips in which "students from the fifth to the eighth grade had had from ten to fifty hours drill in his new system of multiplication, and they demonstrated that they were able to multiply numbers, especially two figures by two figures, with a rapidity fully four times as great as the ordinary person can show" (24: 36). The article is devoted to a description of the method used. The reader would be more convinced of the value of the method if it were supported by a scientifically controlled experiment rather than by a specially prepared demonstration.

Newcomb (37) reports an experiment made in the seventh and eighth grades in a junior high school. Supplementary arithmetic examples were provided for those who had extra time after the regular assignment was mastered. During a six-week period the pupils solved an average of 4.3 problems per day.

Methods of preparing teachers to teach arithmetic have been discussed in two articles by Upton (53, 54). He outlines the type of material which he considers necessary for a professionalized body of subject matter in arithmetic and illustrates his views by a discussion of checking, in which chief attention is given to the method of casting out 9's.

Another study dealing with the problem of preparing teachers to teach arithmetic is that made by Roantree and Taylor (42). These authors have prepared a book on methods, which consists of parallel presentations of information on various items to be taught in arithmetic and the methods that should be adopted in teaching them. The book lays great stress on a more thorough understanding of the nature of arithmetic on the part of the teacher in order that she may stimulate greater interest in the subject in the case of the pupils.

HISTORY OF ARITHMETIC

An outstanding contribution to the history of arithmetic has been made by Smith (48), whose treatment is the most comprehensive of any which has appeared. Although the book deals with mathe-

matics through the subject of calculus, the first 270 pages give a very interesting account of the development of arithmetic. The mathematician has frequently criticized research students in education who have attempted to study the problem of arithmetic. Much of the ground for this criticism would be removed if students of education would thoroughly familiarize themselves with the history of arithmetic as a background for their studies.

Breslich (4) has presented in a striking fashion the changes made in the subject of arithmetic during the last hundred years. He has prepared an interesting account of the content of the cipher books of two pupils who studied arithmetic in Illinois in the years from 1804 to 1808. The material which he presents shows that one hundred years ago arithmetic was essentially a study of rules, dogmatically stated, to be used in solving problems; that practically all the work in arithmetic was written; that most of the problems of that time are now obsolete; that there was a marked predominance of commercial topics because arithmetic was studied largely for commercial purposes; that the amount of arithmetic actually taught was small; and that various types of problems relating to vocational needs were provided.

AN ANALYSIS OF THE GRAPHIC REPRESENTATION OF THE HUMAN FIGURE BY SCHOOL CHILDREN

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The study here reported was made in order to determine the interests, abilities, and difficulties of children of different school grades in drawing the human figure. The subject was selected because it involved, fundamentally, children's problems in graphic representation and because it was so limited in scope as to lend itself to objective scientific procedure. It was so treated as to provide a logical beginning for subsequent relevant investigations. Initial emphasis, therefore, is placed on the exclusive nature of this study in so far as choice of subject is concerned. The value of gaining additional knowledge with regard to the way in which single objects are drawn by children is definitely suggested by a conclusion founded on a recent study of children's drawings. "Progress in ability to draw is not general but specific."[1] The significance of determining how children draw specific objects has been noted by several authors. Experiments conducted by Lukens[2] and McCarty[3] show that, when permitted to draw what they wish, children draw the human figure more frequently than any other thing. Furthermore, McCarty's data indicate that adults are drawn with greater frequency than are children. Another statement referring to the preference which children show for drawing the human figure may be quoted from the study by Sargent and Miller. "The human figure is of all forms the most interesting to children."[4] Thus, the writer arranged certain specific problems, seven in number, related to the one problem of

[1] Walter Sargent and Elizabeth E. Miller, *How Children Learn to Draw*, p. 247. Boston: Ginn & Co., 1916.

[2] Herman T. Lukens, "A Study of Children's Drawings in the Early Years," *Pedagogical Seminary*, IV (October, 1896), 79–110.

[3] Stella Agnes McCarty, *Children's Drawings: A Study of Interests and Abilities*, p. 18. Baltimore: Williams & Wilkins Co., 1924.

[4] Walter Sargent and Elizabeth E. Miller, *op. cit.*, p. 154.

the graphic representation of the human figure, the particular figure chosen being that of the postman. The data were analyzed to determine the interests and abilities of the children and the school grades at which the characteristics found were most marked. It should be understood that excellence or skill in drawing as such had no place in this analysis.

The samples furnishing the data used as the basis of this study were crayon or pencil drawings, measuring six by nine inches, made by school children from the kindergarten to the eighth grade, inclusive. They were obtained from six different cities in response to letters sent to supervisors or teachers of art requesting co-operation in the investigation. An instruction sheet provided for each person presenting the drawing exercise described explicitly the conditions under which the samples were to be produced. The pupils were allowed ten minutes in which to make their drawings after listening to a short story of the postman, in which he was presented in his familiar rôle of delivering letters from house to house.

Approximately eleven thousand samples were secured. In order that a more unified mass of material for analysis might be obtained and in order that the material might be handled with the greatest possible expedience, the drawings were arranged in groups of equal numbers for all grades except the kindergarten and the eighth grade, there being 500 boys' drawings and 500 girls' drawings retained for each grade. Only 250 boys' drawings and 250 girls' drawings were used in each of the kindergarten and eighth-grade groups. Of the total number of samples received, eight thousand were analyzed and are accounted for in this review.

The chief problem of analysis was concerned with determining the interests, abilities, and difficulties manifest in the drawings involved, and it was found extremely difficult to arrive at any conclusions concerning these attributes unless they were made apparent by some tangible and definite means. Thus it became necessary to consider qualities which afforded the greatest possibilities of analysis and which were in harmony with the leading aim of emphasizing certain aspects of the figure. Consequently, it became the plan of the writer to consider problems termed the setting, types of figure, direction in which the figure faced, action, size of drawing, propor-

tion of figure, and details and as many aspects of these problems as could well be pursued. Several of these problems were elaborated into more specialized problems. Because of the uniform character of the data, the general method employed in the analysis was quite without complication so far as the manipulation of the drawings was concerned. On the laboratory tables the drawings were arranged in eighteen groups, there being, of course, two groups for each grade. While it was necessary for these drawings to pass through the writer's hands once for each of the specific problems, the handling of the drawings was virtually the same for all analyses. In every case the judgment of each drawing was recorded as soon as it was determined.

In the first study, the term "setting" was taken to mean such items as were secondary to the figure itself and to include the background, the mail bag, and the costume. With regard to the costume, the records indicate whether or not it was distinguishable as being characteristic. The results disclosed that the progress in the drawing of a suggested background fluctuates in its course throughout the grades, probably because of a diversion of interest to the chief object. It was shown that, in general, an accessory, such as the mail bag, essential to the completeness of a characteristic costume, is drawn with increasing frequency throughout the grades and that a characteristic costume itself tends to be drawn as definitely distinguishable in about the second grade.

In the problem relating to types of figure, three distinct schematic types or forms of figure were found to be present in the largest numbers in the lower grades. These types of figure or so-called "schema" are forms based on the rectangle, the triangle, and the circle. Other forms of less frequent occurrence were recorded as miscellaneous; they included, as illustrated in Figure 1, the "stick-figure," the type drawn with a continuous line, the type constructed with two parallel lines and connected only at the head, and those indistinguishable as human figures. In order to keep the classification as simple as possible, the type most closely resembling the human figure was included within the rectangle group. The comprehensive contact with the data enabled the writer to anticipate and meet the need of determining at which period the schematic rectangle type disappeared and at which period the type resembling the

actual appearance of the figure tended to manifest itself. The analysis indicated that at about the fourth grade all schematic forms used as a basis for representing the human figure are virtually abandoned and that from that period onward there is an attempt to draw the figure as it actually appears. Similar findings are brought out by Sargent and Miller. "In the fourth grade the interest in the correctness of representation is such that the children are no longer satisfied with their crude symbols. . . . . Satisfaction is no longer

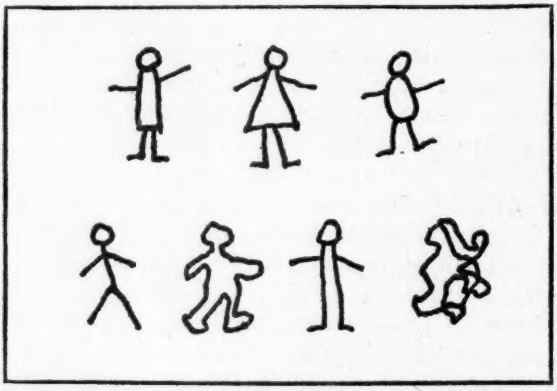

FIG. 1.—The schematic types of figure most frequently found in the lower grades.

found merely in the act of expression, however crude the symbols, but demands better results, even if to obtain these the rapidity of expression is checked."[1] Another statement bearing on the same point of interest is drawn from McCarty's general summary. "Finally evolves the stage of true *representative* art, which seeks to interpret the appearance of things. . . . . The transition is usually marked by an awakened sense of self-criticism, which should lead to definite interest in technique whose mastery becomes the means of setting free the power of adequate expression. No sharp line may be drawn between any two successive stages."[2] These quotations pertain to a stage in the child of sensitiveness to his growing needs, ac-

[1] Walter Sargent and Elizabeth E. Miller, *op. cit.*, p. 212.

[2] Stella Agnes McCarty, *op. cit.*, p. 134.

companied by a groping about for means to satisfy them. In a sense, this self-sought development, however hidden, must be as significant for ultimate attainment as is the more apparent development preceding and following it. This evidence of development seems to furnish a most probable explanation of the arrest in improvement of certain other factors.

The results for the next part of the analysis indicate whether the figure was facing toward the left, toward the right, or frontward. It was found that the figures facing frontward appeared with greatest frequency in the kindergarten and from that grade through the eighth decreased in number. There was a constant increase, therefore, in the number of figures facing the left and the right, these two types corresponding rather closely despite the fact that there was a tendency to draw the head facing the left.

In the case of the problem concerned with action in the figure, action was recorded only when the entire figure appeared to be in action. The drawings showed that suggested action occurs with rapid acceleration up to the third and fourth grades, where, probably because of other interests, this tendency decreases abruptly before it is again resumed, developing with comparative evenness and rapidity through the eighth grade.

One problem dealt with the size of the figure. Only in the kindergarten were extremely large figures more frequent than small figures. Extremely small figures were drawn more frequently in the first grade than in any other grade. In all grades the figures of medium size were predominant.

In the analysis of the several problems combining to give the proportions of the body, the part concerned in each problem was recorded as being of medium size unless it was readily observed to be extremely large, extremely small, or entirely missing. The plan included study of the width of the body, the length of the legs, the length of the arms, the size of the head, the size of the hands, the size of the feet, and the place of attachment of the arms to the body. The results brought to light several salient points of interest. In all the problems except that pertaining to the arms, the results showed a predominance of medium proportions, and in the problem involving the arms the tendency was marked in the direction of arms drawn

too short. The figure was drawn too thin more often than too wide, especially in the lower grades. Short legs were drawn more frequently than were long legs in every grade, with the greatest excess in the kindergarten. Most frequently the head was drawn of medium size, and the progress of this tendency was amazingly regular and constant. From the fifth grade to the eighth grade there was a sharp increase in the number of hands drawn too small, and, except for the kindergarten, the number of feet drawn too small exceeded the number drawn too large. The last part of this general problem was concerned with the place of attachment of the arms to the body. The arms were drawn too high more often in the lower grades than in the upper grades, but even then only occasionally. However, a most pronounced tendency was exhibited. From the fourth grade onward approximately one-half the samples showed the arms placed distinctly too low. Although this evidence is seemingly enigmatical and difficult to account for, several possible causes present themselves. The results show that, although a large percentage of the legs were drawn with no action, more than 90 per cent of the arms were in action, that is, were bent or curved or placed at an angle from the figure. Observation showed so many difficulties embodied in the drawing of the arms that abundant opportunity for further study is furnished by them. For example, it was evident that several distinct problems were general, namely, that of determining where and how to attach the arm to the body, that of determining where the bend in the elbow naturally belongs, that of realizing that the arm can bend in but one place, and that of determining the proportionate length of the arm. The important objective indication brought out by the data at this point is that, of all the problems, the one involving the drawing of the arms presents the most outstanding difficulties to the children. The consideration of the proportions of the figure embraces such a large part of the investigation that it is of interest to compare the results of the several individual analyses. Such a comparison may be made by referring to Figure 2.

Finally, let us consider the facts with regard to the details of the figure. The analysis indicates only whether they were present or absent. It was revealed that features were drawn in more than one-half of the faces in the kindergarten, that the features

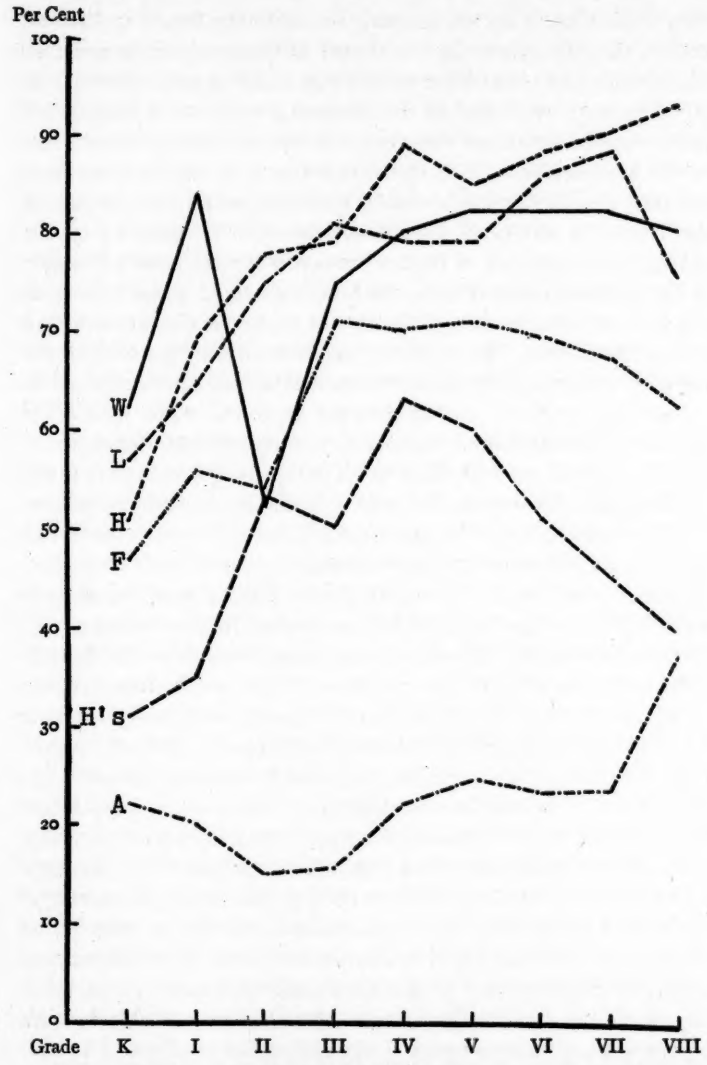

FIG. 2.—Percentage of medium proportions found in each grade for the problems involving width of figure (W), length of legs (L), length of arms (A), size of head (H), size of hands (H's), and size of feet (F).

then tended to be drawn less and less up to the fourth grade, and that in the fifth grade they appeared in many drawings and continued to increase in number through the eighth grade. Corresponding facts were evidenced in the frequency with which fingers and necks were drawn except that their numbers were not similarly large in the kindergarten. Of course, the features of the face are more essential to a kindergarten child's idea of a person than are either the fingers or the neck. Doubtless, the common practice of discouraging the drawing of features accounts for the steady decrease in the number recorded up to the fourth grade, at which period, as has been noted, the child endeavors to represent the figure with a new independence. The relatively steady augmentation of the number of details confirms other evidence that, when attention is directed with emphasis to the drawing itself and when details are introduced, the drawing is inclined to become smaller. For example, the feet were drawn with more detail in the eighth grade than in the earlier grades; they were also smaller in size in the eighth grade.

Very marked is the correspondence between the number of small hands and the number of hands showing fingers; there is a rapid increase in both toward the eighth grade. Furthermore, more arms were drawn too low in the eighth grade than in the seventh grade, perhaps because the difficulties encountered were more keenly realized and the errors were more pronounced on account of the attempt to include details. It may be recalled that the largest figures were found in the kindergarten. This fact illustrates the tendency to draw more flourishingly when the idea is the chief center of interest. Conversely, when the attention is attached to the drawing itself rather than to the idea, the attention becomes intensified and the drawing becomes more deliberate, even cramped, as compared with the large loose drawing of the kindergarten child or the confident drawing of the skilled artist. The naïve, spontaneous drawing of very young children and the drawing of artists are both done in a confident and relatively direct manner. The master draws with facility because he has surmounted difficulties; the young child draws readily because he has not yet become aware of the difficulties involved. The children who have become conscious of difficulties but who have not yet mastered them are most generally the problem of the teachers of

art in the elementary school. It seems apparent, therefore, that one of the great purposes of the teaching of drawing in the elementary school is to retain, so far as possible, the assurance and facility of the child's first drawings and gradually to furnish in the most effective way the means to overcome difficulties as they arise, that is, before they assume the nature of burdens. After reviewing the results revealed, we may state, with their support, that, while the figure as a whole is represented in accordance with its actual appearance at about the fourth grade, the several parts of the figure, such as the legs, arms, head, hands, feet, features, fingers, and neck, are seen to be represented in accordance with their actual appearances at different school grades, depending on the nature of the interests and difficulties, including imposed restrictions, which they hold for the child.

In order to make the investigation more complete, the results of the drawings of the boys and the girls in each grade were recorded separately. Because the analysis showed only slight differences between the boys and the girls, only brief mention of these differences is made at this point. Although the variations were not marked, there was a greater tendency shown by the boys to draw the figure of extreme proportions, to omit parts of the body, and to draw details. The girls showed a greater inclination to draw the figure of medium proportions and to draw more comprehensively. Because the results gathered from the data have been necessarily curtailed in this report, Table I presents the numerical results for the entire analysis.[1]

The results presented have been so stated as to stress the need of adjustment and adaptation of present pedagogical methods with regard to the teaching of the graphic representation of the human figure throughout the nine grades concerned in this analysis. Consideration of the results points to the importance of teaching the drawing of even a single object only after having determined the nature of the interests and the difficulties attaching to it for the particular group of children concerned. If drawing is to fill its place in the elementary school with the greatest possible degree of effec-

[1] Detailed results of the investigation may be found in "Graphic Representation of the Human Figure as Drawn by Children" by Helen Ann Zesbaugh. Unpublished Master's thesis, Department of Education, University of Chicago, 1925.

TABLE I

COMBINED RESULTS FOR EIGHT THOUSAND CHILDREN IN ALL GRADES IN THE CASE OF EACH OF THE EIGHTEEN PROBLEMS ANALYZED

Classification	Number of Boys	Number of Girls	Total
Setting:			
Background:			
Present	1,798	1,911	3,709
Missing	2,202	2,089	4,291
Mail bag:			
Present	3,347	3,392	6,739
Missing	653	608	1,261
Costume:			
Typical	3,715	3,580	7,295
Not typical	285	420	705
Types of figure:			
Circle	91	59	150
Triangle	215	261	476
Rectangle	3,569	3,557	7,126
Miscellaneous	125	123	248
Direction:			
Body:			
Left	1,845	1,761	3,606
Front	544	515	1,059
Right	1,611	1,724	3,335
Head:			
Left	1,528	1,472	3,000
Front	1,440	1,679	3,119
Right	995	836	1,831
Missing	37	13	50
Action:			
Present	2,338	2,379	4,717
Missing	1,662	1,621	3,283
Size of body:			
Large	397	319	716
Medium	3,008	3,235	6,243
Small	595	446	1,041
Proportion:			
Width:			
Thin	343	277	620
Medium	3,031	3,035	6,066
Thick	626	688	1,314
Legs:			
Long	132	151	283
Medium	3,049	3,157	6,206
Short	762	642	1,404
Missing	57	50	107
Arms:			
Long	107	79	186
Medium	858	876	1,734
Short	2,891	2,956	5,847
Missing	144	89	233

TABLE I—*Continued*

Classification	Number of Boys	Number of Girls	Total
Head:			
Large	476	489	965
Medium	3,243	3,264	6,507
Small	244	235	479
Missing	37	12	49
Hands:			
Large	176	164	340
Medium	1,897	2,030	3,927
Small	1,061	1,161	2,222
Missing	866	645	1,511
Feet:			
Large	375	296	671
Medium	2,529	2,579	5,108
Small	868	912	1,780
Missing	228	213	441
Arm attachment:			
High	173	105	278
Natural	2,352	2,463	4,815
Low	1,331	1,343	2,674
Missing	144	89	233
Details:			
Features:			
Present	1,943	1,757	3,700
Missing	2,057	2,243	4,300
Fingers:			
Present	1,043	1,069	2,112
Missing	2,957	2,931	5,888
Neck:			
Present	1,733	1,655	3,388
Missing	2,267	2,345	4,612

tiveness, its advocates must respond to the need, constantly growing more insistent, of studying its every aspect in relation to the school child with the thoroughness and the definiteness that are being applied objectively to other subjects of the school curriculum. There are certain evidences in the results of this study which indicate either that the interests of the children have not been determined or that they have been dominated. It may not be amiss to refer to what seems to be a common example of this tendency, namely, the pedagogical "habit" of restricting the children from drawing features in their figure drawings. Attention has already been directed to the fact that in the kindergarten there is a tendency to draw features but that this tendency decreases until the upper grades are reached. With this single example to illustrate the point, a question is raised

as to the justification of the restriction. If the children have certain interests, no matter how crudely they may be expressed, they should be fostered and encouraged through the inevitable stages through which they must pass before facility in skilful expression can be attained. How much more reasonable it would be to allow children to draw features until they themselves become aware of the crudities in their efforts and are thus stimulated to observation than to check their interest until a period when the teacher decides that the time has arrived for the next step in the development. It is not strange that this deferred effort is unsatisfactory both to the child and to the teacher. Regardless of the initiative on the part of the child, it scarcely seems probable that his eagerness can be relied upon to grasp the most effective solutions of the ever present difficulties. Here enters the need for adequate teaching based on purposes and methods arrived at through objective and scientific study of these problems in their relation to the child. After all, if the school exists for the child, should not the teacher determine, in so far as possible, the nature of his interests, abilities, and difficulties and plan the teaching accordingly, restricting and restraining only when there is real justification?

THE USE MADE OF LEISURE TIME BY JUNIOR HIGH SCHOOL PUPILS

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One of the goals of education, we are told, is the worthy use of leisure time. The school is trying to teach, through participation, those things which are to carry over into life, and it is interesting to see how far school life is functioning toward that goal on Saturday and Sunday.

It may be that the school cannot go very far in the direction of influencing the use of the leisure time of the pupils because of factors in the home, but knowing how the boy spends his time will certainly help the school to shape its course of procedure more intelligently. To this end, several questions were asked of a group of 175 boys, ranging in age from twelve to fifteen years. Table I gives a summary of the answers.

The boys may be divided into four general groups on the basis of what they do on Saturday morning: those who work to earn money, those who do chores, those who play—usually ball—and those who do nothing. What would happen to these groups if the boys could have their own way? Only nineteen of the thirty would continue to earn money, and only thirty-nine of those who do chores would continue. These groups show a large percentage of dissatisfaction with the activities engaged in. Almost three times as many boys would play as do, while the "do-nothing" class would be reduced from twenty-eight to one. Does this great change in the "do-nothing" class mean that the boys need leadership?

The situation changes on Saturday afternoon. We find two large groups—the workers and the players. There are five smaller groups: "caddy," "chores," "nothing," "show," and "town." If a choice were to be given, the two large groups would continue very much as they are. The caddy group is different; only ten of the twenty-one who caddy would continue if given their choice. Chores must weigh heavily on some; of the sixteen who actually do chores, only five are

willing to continue. The "show" group and the "town" group are satisfied. The "do-nothing" group again decreases in number, this time from seventeen to two.

TABLE I

HOW 175 BOYS FROM TWELVE TO FIFTEEN YEARS OF AGE SPEND THEIR LEISURE TIME AND HOW THEY WOULD LIKE TO SPEND IT*

	SATURDAY						SUNDAY					
	Morning		Afternoon		Evening		Morning		Afternoon		Evening	
	A	B	A	B	A	B	A	B	A	B	A	B
Ball game	0	0	0	2	0	0	0	0	20	17	0	0
Build something	0	0	0	0	0	0	0	0	2	0	0	0
Caddy	6	11	21	10	0	0	15	11	13	8	0	0
Chores	76	39	16	5	11	2	5	0	0	1	0	1
Christian Endeavor	0	0	0	2	0	0	0	0	2	0	0	0
Church	0	0	0	0	0	1	46	33	6	5	28	20
Fishing	1	2	6	10	0	3	0	1	2	6	0	0
Go somewhere	1	2	0	1	0	2	3	0	0	0	0	0
Hike	0	5	0	8	0	3	0	6	3	8	0	1
Loaf around the store	0	0	0	0	3	3	0	0	0	0	0	0
Nothing	28	1	17	2	14	3	18	5	18	2	45	9
Park	0	0	0	0	0	1	0	0	2	1	0	0
Picnic	1	0	0	1	0	0	0	1	0	1	0	0
Play	27	66	48	41	36	40	9	23	34	36	22	35
Plow corn	0	0	0	1	0	0	0	0	0	0	0	0
Radio	0	0	0	0	12	5	1	1	1	1	10	8
Read	1	0	0	0	37	21	5	6	10	1	24	20
Rest	0	0	0	0	0	2	0	0	0	1	0	0
Ride	1	6	1	6	10	10	1	1	23	9	13	18
Run around	0	0	0	0	0	0	0	0	0	0	0	2
School	0	1	0	0	0	0	0	0	0	0	0	0
Show	0	1	13	22	26	31	0	1	21	22	22	39
Sleep	1	5	0	1	0	1	2	7	0	0	0	0
Study music	0	0	1	1	0	1	0	0	1	1	1	1
Study Sunday-school lesson	0	0	0	0	0	0	0	0	1	1	0	0
Sunday school	0	0	0	0	0	0	58	42	0	4	0	0
Swim	0	0	1	12	0	0	0	0	1	5	1	1
Town	1	4	16	12	6	6	0	0	1	1	1	2
Visit	1	1	2	0	5	5	0	0	11	6	5	3
Work	30	19	33	25	15	15	12	5	3	2	3	0
Undecided	0	12	0	3	0	20	0	32	0	36	0	15
Total	175	175	175	175	175	175	175	175	175	175	175	175

* The columns headed "A" indicate what the boys actually do; the columns headed "B," what they would do if they were permitted to choose their activities.

We may expect to find a variety of activities on Saturday evening. Three large groups are engaged in reading, playing, and attending shows, quite as we might expect. Five smaller groups are doing

chores, listening to the radio, riding, working, and doing nothing. When the boys assert their likes and dislikes, we find some interesting changes. The playing group remains the same. The reading group shrinks from thirty-seven to twenty-one—almost one-half. The comparatively small and unchanging "show" group leads one to believe that the show does not make as strong an appeal as one might think. The radio has not become popular as yet. Even going for an automobile ride is reported by only ten boys, and no others seem to envy them. Fifteen work, and no others want to join them. The "do-nothing" group changes from fourteen to three.

Sunday morning presents an interesting study. A little more than one-half (59 per cent) of the boys go to church or to Sunday school. The others may be found caddying, working, playing, or doing nothing. When a choice is offered, we find that the church and the Sunday school do not appeal to the majority of the boys; a little more than one-fourth of those who attend would like to do something else. Does this mean that the church and the Sunday school are reaching only three-fourths of those who attend? What about the one-fourth who attend against their wishes? Of the twelve boys who work on Sunday morning, only five are interested in working; a great many more want to play than do play. The "do-nothing" group changes from eighteen to five.

It is to be expected that the largest group of activities will come on Sunday afternoon. There are no large outstanding groups except the play group. Seeing the ball game, caddying, reading, riding, going to a show, visiting, and doing nothing are prominent. Five of the thirteen boys who caddy want to do something else. Reading on Sunday afternoon does not seem to appeal to the ten boys who read, for only one prefers it to other activities. Riding in automobiles is not very popular with the boys; of the twenty-three who go, only nine like it. Those who go to the show are satisfied. The "do-nothing" group changes from eighteen to two.

Common to all the groups on Saturday and Sunday is the "do-nothing" group, and it is the largest on Sunday evening, approximately one-fourth of the 175 boys. Will the boys who do nothing become a dangerous factor in society some day? Smaller groups are attending church, playing, listening to the radio, reading, riding, and

attending a show. The church suffers in the evening as it does in the morning; a little more than one-fourth of the boys who go do not like to go. More boys would like to play than do play. The few readers are satisfied. More boys would like to go to a show than do go.

There is another factor that enters into the boy's problem. Do the fathers of these boys ever play with them? Five fathers must be real "pals" to their sons, for five boys answered as follows when asked whether their fathers play with them: "He sure does every night." "You bet he likes to." "Every night he plays ball or horseshoes." "Every night. He kids and tells jokes, too." "Yes sir! He gets all the kids in the neighborhood to come and play." Twenty fathers never have any time to play. Four boys have no fathers. It is true that 146 fathers play with their sons, but they do not play with them enough to make much of an impression.

In the case of such a small group of boys, it is not safe to draw final conclusions. Some outstanding facts are present, however. The number of group activities at any one time, except Sunday afternoon, is small—not more than thirteen. The total number of different activities is only thirty. One is surprised at the large number of boys who do housework for their mothers. This comes under the heading of "chores." The show is not as popular as one might expect. Visiting is not very common; the largest group is on Sunday afternoon. The little use made of the parks is surprising. Radio has not become so popular as to claim much attention. There seems to be a need of co-ordination of all the agencies that are trying to satisfy the demands of our social life. Many of the answers reveal a discontent that makes it impossible for the boy to grow up in a wholesome atmosphere.

Can the junior high school make use of this information? The number of activities is small, perhaps too small. Could the school enlarge this number? Could it help to co-ordinate social agencies? Would a personal touch help those who are discontented? If we accept the worthy use of leisure time as one of the goals of education, it is distinctly a part of the duties of the junior high school to learn the facts, to study the conditions, and to make the goal real for every boy and girl.

THE SUPERVISOR AND THE TEACHER

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There was a time in the history of education in this country when research and constructive thinking were left to specialists or to persons in authority over the teachers. That day is past, and it is now generally recognized that the many problems of modern education must be solved in the classrooms. Every teacher must be a constructive thinker and a scientific investigator in her own classroom. An experiment may be simple, but it will keep the teacher growing and make teaching the fascinating game it ought to be. The principles of modern education apply to the growth of teachers as well as to the growth of children. Initiative, independent thinking, originality, and co-operation must be encouraged in teachers as well as in children.

The title of this article might perhaps be "The Supervisor *as* the Teacher," because the supervisor must be a teacher in the best sense, the leader who stimulates growth and guides development in both teachers and pupils. Unfortunately, theory and practice do not easily move forward at the same rate. The supervisor who undertakes to encourage a progressive program of work in a large city school system is faced with many problems.

A brief survey of the plan adopted in San Francisco of making the procedure in the kindergarten and primary grades follow closely the principles and aims of modern education will perhaps be of interest.

We include in the kindergarten-primary department all the teachers in the kindergarten and the first three grades—more than six hundred teachers in all. In the autumn of 1923 three schools were selected as "tryout centers" in the hope of proving the value of the changes we wished to make in the kindergarten-primary work. The schools were selected because of the kinds of district they represent and because of the willingness on the part of the principals and teachers to undertake the change.

We did not bring in teachers especially trained in the work to be undertaken but trained those already in the schools. Many conferences were required in order to build up the background necessary for the new procedure. Much outside reading was done by the principals and teachers, and frequent discussions of the principles and the aims of the work were held.

The first thing to be done was to make the rooms suitable places for an activity program for little children. Where chairs and tables were not available, the desks were arranged in a hollow square, leaving space in the center for the reading table and space in front for group work. Enough chairs were put in each room so that the children could be gathered into informal groups. As the buildings used were neither new nor well equipped, storage cabinets were added. Open racks installed to make materials accessible to the children became "Help Yourself Tables." Benches from the yard were made into work benches. Large materials were substituted for smaller ones. The following supplies were found to be necessary in these schools and are now furnished to every school.

Balls, rubber, 5 inch
Balls, soccer
Brushes, camel's hair
Brushes, paint (with long handles)
Clay flour
Crayons, large—yellow, brown, green, red, orange, violet, black
Fasteners, paper, ¼ and ½ inch
Glue, ½ pint
Hammers
Matting strips, 5 feet long
Nails, wire, flat head, ¾ and 1 inch
Needles, crewel, No. 7
Needles, tapestry, No. 18
Paint, inside
Paint, kalsomine—yellow, blue, green, red, orange, violet, brown
Paper, colored construction, 12×18
Paper, colored cover, S. & S. C., 6½×10
Paper, colored, standard construction, S. & S. C., 12×18
Paper, crêpe
Paper, Manila, 4 and 6 inch (for writing)
Paper, Manila, 24 inch
Paper, Manila drawing, 18×24
Paper, news, 18×24
Paper, tissue, 20×30—white, light blue, pink, yellow, orange, lavender, salmon, green
Paste
Pencils, beginners'
Reading flash-card strips
Saws
Scissors, 4½ inch, blunt points
Tacks, thumb, 100 in box
Tape, adhesive, 5 yards to roll
Thread, warp, brown
Thread, white, No. 20
Turpentine
Wall board, 2×6
Wood—load of mill ends for each school

A flexible daily program was put into operation. A writing system previously used for all grades was adapted to the little children. A procedure resulted which did not establish habits contrary to the arm movement required in the upper grades but which eliminated analysis of the words to be written and substituted free large writing of word wholes on large unruled paper for practice work on letters and movement drills.

No one reading method was encouraged. We tried various approaches to reading, encouraging much of the work type of reading, stories about activities, the school newspaper, etc. A choice among three basic sets of readers for group work was given. Phonetic analysis was subordinated, and the little phonetic work done was taken up in the second and third grades. Many single copies of readers, picture books, etc., were put on the reading tables, and individual library work was encouraged. A free-work period was put into the day's program.

The children in the three schools were given the Pintner-Cunningham and Haggerty group intelligence tests and grouped according to ability. Several silent and oral reading tests were given.

All the teachers in the kindergarten and the first three grades were allowed to see demonstrations given by the supervisor of every phase of the work from the kindergarten through the third grade. Several months were spent in this preparatory demonstration work. In January, 1924, the three schools were ready for visitors. The principals of all the elementary schools were invited in groups of ten or more. They spent several whole days in the tryout schools and were taken from the kindergarten through the third grade. Demonstrations were given for them, often by the supervisor. Discussions were held at the end of the visit, and questions were asked.

Visiting days were then scheduled for teachers throughout the city, substitutes being furnished for the classes of the visiting teachers, who observed the work from the beginning through the third grade under the direction of the supervisor. By this time the teachers in the tryout schools felt sure enough of themselves to be willing to do the demonstrating. Discussions always followed these visits.

Teachers who wished to try any of the changes in their own schools were permitted to do so but were urged to go slowly. The

work spread into many schools. A series of group neighborhood meetings were held throughout the city whenever a particularly good piece of work was discovered. This stimulated the spread of the movement.

The children in the three schools were retested in June, and the results showed that the so-called "fundamentals" had not been neglected.

From the beginning, university and teachers' college extension courses were given, and many of the city teachers availed themselves of the opportunity to build up the background necessary in order to undertake the work. Demonstration lessons were given in connection with these courses, and the modern point of view in education began to be accepted.

At the end of the first year a committee of principals and teachers was appointed to formulate the course of study. Several teachers and principals in the tryout centers were members of the committee. The supervisor was elected chairman of the group. A common background of experience made it possible to build a course of study which is flexible enough to meet changing conditions and yet definite enough to serve as a guide to new teachers.

During the school year 1924–25 there were 125 probationary teachers in the kindergarten and primary grades. Demonstration lessons were given for these new teachers every two weeks, the kindergarten and the first-grade teachers being grouped together and the second- and third-grade teachers being grouped together. Group neighborhood meetings were held for experienced teachers and principals, and the new course of study was interpreted through practical demonstrations. A general meeting of all kindergarten and primary teachers and principals was held once a month.

In June, 1923, there were forty-six kindergarten teachers; there are now seventy-six. In twelve schools there are double sessions with two teachers. We are building all the new buildings with two kindergarten rooms. Last year the kindergarten attendance increased 25 per cent.

The kindergarten equipment and program of work are similar to those in most progressive schools. The program of work for the primary grades is as follows:

Before 9:00.—The children enter and choose purposeful work.

9:00–9:15.—Group discussion. Plans for the day are made, especially the work which part of the children will do while others are occupied with the teacher. The news items for the daily newspaper are entered and read. A story which some child has prepared at home from a library book is then read to the group.

9:15–10:00.—Reading. Each class is divided into two or three groups according to ability. Various approaches are used, and the time for the various groups depends on the needs of the pupils. There is generally reading from books at this period.

10:00–10:20.—Outdoor-play period. Each teacher accompanies the children in her room to the yard and stimulates vigorous play with balls, reins, ropes, hoops, etc. No organized games are used in the morning outdoor-play period.

10:20–10:40.—Music—songs three times a week, rhythm and musical appreciation twice a week.

10:40–11:00.—Some form of spoken or written language is encouraged. This sometimes takes the form of a co-operative story, poem appreciation, the writing of an advertisement of a puppet show, etc.

11:00–11:30.—A second reading period is devoted to the workaday type of reading—signs, labels, single copies, etc. There is only one group during this reading period.

11:30–12:00.—Free-work period. Great care is taken to make the work of this period purposeful. The group criticism at the close is planned to check habits and attitudes as well as skills.

1:00–1:30.—Practice period for writing, number, or spelling, *the need for which is felt by the children.*

1:30–1:50.—Another library or reading period. Usually this is devoted to the use of single copies and the checking of results.

1:50–2:10.—Another period of outdoor play. Each teacher accompanies the children in her room to the yard and stimulates organized games.

2:10–2:30.—Sometimes drawing, sometimes some form of language work, written or spoken language. Kalsomine painting is encouraged from 9:00 A.M. to 2:30 P.M., two or three children painting all the time.

Perhaps the greatest contribution we have made is in our insistence on a unified program in fact as well as in theory. The supervisors of the special subjects—drawing, physical education, music, etc.—do not cut through with a course of study in their fields. We believe that the teachers of little children as well as the children themselves should not be responsible to too many people. The supervisors of the special subjects act as consulting specialists. They do not deal directly with the children. The teachers are at liberty to ask help from them in carrying out the activities of the classroom. All meetings and demonstration lessons for the kindergarten and primary teachers are under the direction of the kindergarten-primary department. The supervisors of the special subjects call no meetings of the kindergarten and primary teachers but are sometimes invited to make contributions from their fields at the meetings of the kindergarten-primary department.

The new twenty-four-room buildings are built with a kindergarten-primary wing. Each kindergarten and first-, second-, and third-grade classroom has an alcove with a sink, running water, work bench, easel for painting, etc. Individual cabinets are provided for the children in the kindergarten and in the first, second, and third grades. Cork surface is placed in every available corner, above the blackboards and on the walls of the alcoves. Tables and chairs are provided for all first-, second-, and third-grade classrooms.

The supervisor of the kindergarten and primary grades has three helping teachers, two for the kindergarten and one for the primary grades. These skilled teachers are sent to the new teachers who need special help. The field is so large that the time available for the supervisor's visit to the seven or eight lower-grade classes in a school enables her to remain only a short time in each room. She acts somewhat as a diagnostician. When a teacher shows special weakness or lack of experience in her work, a helping teacher is sent to stay with her for a day or two and to return at intervals of not more than two weeks until the teacher's work is acceptable. The supervisor is then notified, and she visits the teacher. As there have been at least one hundred new teachers each year in the kindergarten-primary field for the last three years, this special help is particularly necessary and is bringing great returns in the evenness of growth throughout the city.

We believe in the work that we are doing in San Francisco. We have only begun, and there are many problems yet unsolved, but we know that progress will be made only by facing the problems squarely and by consistently providing the school environment and guidance which we believe little children should have.

In the modern school, perhaps we put greater emphasis on "doing things," but we do not neglect the subjects of the traditional course of study. Children learn to read, write, and spell today as surely as they did in the past. Drill is as necessary as it ever was, but the children attack the drill with keener interest because they feel that it is necessary in order to participate more fully in the doing of things.

In closing, I want to make a plea for an administration and supervision of city school systems which will permit the theory and practice of modern education to function together and which will make the little child's day a unified bit of life in fact as well as in theory.

INTRODUCING MORAL AND RELIGIOUS INSTRUCTION IN THE PUBLIC SCHOOL

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Within recent years thoughtful educators have given increased attention to character education. With the growing complexity of social and economic life and the notable tragic results which have followed the omission of this phase of education, a conception of education has developed involving a more equable educational emphasis on the threefold nature of the child—mind, body, and spirit. A careful study of the causes of personal success or failure reveals either extraordinary strength or weakness of character as a fundamental contributing element. Such study has led to the introduction of some form of moral instruction in practically all schools.

Various methods of teaching morals have been employed by teachers, but as yet no *best* method has been discovered. Experiments have been conducted in hundreds of schools, and many proposed methods are being tested at the present time.

One method which has been emphasized in the schools of an entire county in Oklahoma is worthy of study because of the remarkable results achieved through its use. The method resulted from a conscientious attempt made by Harry Miller, the boy-scout executive of Pontotoc County, Oklahoma, to furnish the members of the boy-scout organization with direct instruction of a religious and moral nature. From this meager beginning, the movement spread until it included both boys and girls in the majority of the rural and grade schools of the county. As finally developed, the method involved the definite teaching of certain ideals for one hour each day for five days. Three distinct courses were offered, either simultaneously or at different times during the year. These three courses were "The Life of Christ," "Religious Leaders of the Old Testament," and "Moral Heroes of America." The teachers of these courses were the boy-scout executive; members of the faculty of the

East Central State Teachers College, Ada, Oklahoma; and the pastors of the various churches in Ada. Interested laymen in the various communities and the local teachers also assisted. Preliminary to the offering of the courses in the various communities, a series of lectures on the various topics to be taught was delivered by President A. Linscheid of the local college. All prospective teachers of the courses were requested to attend these lectures.

The teacher and the administrator will be interested in learning how these courses were introduced in the various schools. One gratifying feature of the entire plan was that no serious difficulties were encountered in any community. The fact that the leaders in educational and religious thought in the county seat were unanimous in the opinion that the courses were worth while was sufficient evidence to warrant the acceptance of the idea throughout the county. Obviously, the county superintendent of schools and the city or village superintendent or principal were consulted and included in all conferences preliminary to the opening of the courses. The teachers in the various rural and grade schools were then notified by personal conference, by letter, or through the weekly newspaper that the opportunity was available for short courses of the type indicated. In most instances, the teacher on her own initiative consulted school-board members, parents, and pupils about the courses; arranged the few necessary details if there was no opposition; set aside the necessary time; and requested that the courses be given at such time as could be conveniently arranged. Any or all courses were open to all the pupils in a school but were not required. Each pupil's participation depended on his own decision. Very few pupils, however, neglected the opportunity.

The classes were taught in somewhat the same manner as that in which other subject-matter classes were taught. Each pupil was supplied with an appropriate text, and lessons were assigned. At the beginning of the period the school or class was led in the singing of a number of patriotic and religious songs by a competent song-leader. Comments on the history and the meaning of the songs were usually made by the leader. After the song service, a minister read a short lesson from the Bible, gave a few words of explanation, and offered prayer. After twenty minutes of an opening exercise of this nature,

the instructor took charge, and the remainder of the hour was spent in comments on the assigned story, questions, answers, and discussions. The pupils were informed in advance that a fairly representative examination would be given at the end of the week and that honorable mention would be given to the three pupils making the highest marks.

The extent of the work throughout the county is indicated by the fact that during the school year 1924–25 a total of sixty-seven classes in character education were taught. The number of boys attending these classes was 1,445, and the number of girls was 1,101, making a total of 2,546. The effects of such a course given to a large, representative group of boys and girls in the county cannot be estimated. The majority of the pupils chose the course entitled, "The Life of Christ." This course was offered in forty-one schools and was studied by a total of 2,068 pupils (967 boys and 1,101 girls).

The course in "The Life of Christ" consisted of a study and interpretation of the essential events in the life of Christ and of a study of his character. The course in "Religious Leaders of the Old Testament" included a study of the lives of Moses, Abraham, Joseph, Job, and David. The course in "Moral Heroes of America" included a study of the lives of Roger Williams, William Penn, Francis Asbury, Dwight L. Moody, and John B. Gough.

It is common knowledge among those who have attempted to teach morals that any effort at an evaluation of the results is largely fruitless. Character traits are so interwoven and are subject to such slow and imperceptible development that the results of any method of teaching character can be determined only in broad, general terms. It was apparent from the class discussion that the pupils were familiarizing themselves with many ideas and ideals which they had not previously known. This fact was further substantiated by the large number of relatively complete and accurate examination papers written. The regular teachers apparently sensed an indefinable good resulting in the later work of the pupils and, without exception, requested a repetition of the work the following year. Parents and school-board members, particularly those in Protestant communities, were enthusiastic in their praise of the courses regardless of the denominations of the leaders of the class groups.

The general opinion of those intimately connected with the work is that the results were of recognizable worth and were the beginnings of much good. Harry Miller, the originator of the idea, said:

> The course in "The Life of Christ" can be taught in the public schools in any county of the state where the Protestant ministers recognize the bigness of the task and will forget denominationalism and where the majority of the school patrons and pupils are Protestant. In this county every school board and all the teachers welcomed the course and gave it their most cordial support. They were perfectly willing that one hour each day for five days should be used for this work. One of the best results following these courses is that in one or two places Sunday schools have been started. In many places renewed interest in Sunday-school work has been noted, and many young people have been better prepared to teach in these schools.

In the opinion of Rev. R. T. Blackburn and Rev. C. C. Morris, who taught in many of the schools, "two things stand out prominently about this type of work. First, parents want their children to know more about the life of Christ; second, they are willing to have it taught in the public schools so long as denominationalism is left out."

In commenting on the work, President A. Linscheid of the East Central State Teachers College said:

> One of the very best plans that has come to my attention for promoting the moral welfare originated here in Pontotoc County. In the method employed we have a thoroughly wholesome way of focusing attention on the true elements of greatness in those who have made their names immortal, and there is no better moral training than a consideration of the life and teachings of Jesus and the lives of those who stand out in the moral realm as Pike's Peak stands out above the Colorado plains. In addition to the value of these courses in promoting sane and sound idealism in our boys and girls, is the very great service that these courses are rendering in tending to bridge the gap which exists between town and country and between different classes in the county. I am convinced that Mr. Miller and those associated with him in this work have done more to create good will throughout the county than have all other agencies combined. The results achieved already are sufficient to warrant the most hopeful expectations in the future.

While of significant worth as they are at present conducted, the courses would be of considerably more value if the pupils were permitted to carry out the ideals involved in each lesson by performing various acts particularly beneficial in emphasizing the ideals

studied. This could be effected through conduct assignments. In this connection each pupil should be required to carry out and report on some definite personal act which is an exemplification of the ideal involved in the lesson. This change in the courses would render them more vital in the lives of the pupils in that character traits would tend to be fixed through action.

Another desirable modification of the courses would be to require each pupil to report a number of his own acts or those of others which represent the embodiment of the ideals studied. This practice would motivate the lesson material and remove the indirect, detached element which is often present in the pupil's mind.

One justifiable criticism of the plan is the short amount of time devoted to the teaching of the several courses. No doubt, greater good would accrue if the courses were six or eight weeks in length, but this extension of the work would be impossible under the present method of operation. A modification of the plan which would increase the length and the effectiveness of the work would be to secure the co-operation of the local teachers so that they would continue the course through several additional weeks. This would necessitate the use of textbooks larger than those previously used, with the consequent increased burden on the teacher, but many teachers could be induced to continue the work, especially following the inspiring introduction by the several leaders.

With the recognized value of character education as a proper requisite for successful participation in the affairs of life and the relatively meager attempts that have thus far been made toward character development, it is readily apparent that any attempt to stress this most important phase of education is praiseworthy. While, as was indicated, no best method has yet been discovered, it is felt that the plan described embodies a successful attempt to focus attention on a few essentials of character and moral ideals. The method has been tried in a sufficiently large number of schools and over a long enough period to recommend it for trial to any teacher or school administrator who is interested in forwarding education of this particular type.

Educational Writings

REVIEWS AND BOOK NOTES

The evolution of social institutions.—Human development is a result of social influences or a social consciousness expressed in a variety of "institutions" acting on native instincts and capacities in individuals. Recent psychology, both individual and social, has put the emphasis on the individual and his inborn equipment to the neglect of social forces. Judd's important contribution[1] to both social and educational psychology shifts the emphasis to the institutions which man has created by long ages of experiment in co-operation and which have become dominant factors in determining thought and conduct. It is a significant supplement or even an antidote to an uncritical and narrow behaviorism and to a social psychology founded on instincts and instinctive tendencies.

The title of the book would, no doubt, lead the reader to expect discussions of such institutions as the family, marriage, the church, industry, the nation, and public opinion. He will perhaps be surprised to discover in the successive chapters tools and tool consciousness, systems of exchange, money and credit, number and number systems, methods of reckoning time and punctuality, weights and measures and precision, the alphabet and language, music, graphic art, religion, science, and government treated as "social institutions." These are the psychological products of social co-operation which man has built up and which have now become all-important guides to his behavior. The method and character of human life cannot be fully understood without a knowledge of the way in which human ideas have become recorded in institutions and the way in which they have transformed the environment into which the successive generations have been born. Each chapter falls into two parts, one a description of the social institution and an outline of its evolution from primitive beginnings, the other a psychological analysis of the mental processes involved in the building of the institution and the psychological effect of the institution on the individual after it is constructed.

Tools and tool consciousness and systems of exchange are selected as types of institutions dealing with concrete, tangible objects. Number and number systems, methods of measuring time, and weights and measures are three related institutions which are psychologically unlike in the mental processes involved, but all contribute to what we call "scientific methods of exact thinking."

[1] Charles Hubbard Judd, *Psychology of Social Institutions*. New York: Macmillan Co., 1926. Pp. x+346.

The alphabet and language are the fundamental social institutions "perhaps more general and more important than are any of the other enlargements in experience which result from social influence" (p. 328). Judd takes psychologists vigorously to task for neglecting language in their treatises and for failing to recognize its fundamental influence in directing thought. Music, graphic art, and religion are typical institutions related to personal emotions and having a psychological history wholly different from that of the more impersonal adjustments in other institutions. Science and government are two contrasted institutions of social control. "Science is a method of thinking which the race has evolved through a long history of comparison and criticism of social experience" (p. 300). "Government . . . . is the device which social intelligence has evolved to direct and check human behavior so that there shall be harmony within the group" (p. 4). Of these two forms of control, government is the earlier and the more forceful. "The ideal condition to which we may look forward is that in which science and government will coalesce and all statutes will be based on the kind of critical analysis of experience which is characteristic of science" (p. 322).

The central thesis of the book is that human evolution is not a matter of instincts, that out of instinct has grown something new, and that social consciousness and social institutions are products of a higher form of organization and are realities worthy of full scientific recognition. Just as the appearance of life represents in evolution an apparent discontinuity or transition to a new level of organization and the appearance of intelligence another, so the appearance of a social consciousness may be said to represent a third level of organization. To make social institutions merely expressions of individual intelligence or products of human reactions to external reality does not adequately account for the effects of co-operation; nor does it supply an explanation of the mature human being. Human evolution is unique in character.

While the volume is essentially a contribution to social psychology, the closing chapter, "Education as Socialization of the Individual," outlines the bearings of this system of psychology on educational theory and practice. Society imposes its institutions on the individual, especially through the school as a special agency, and molds him to its needs. The dominance of language in the curriculum as the institution which every individual in the community must master and of arithmetic as the institution which develops methods of exact thinking can be readily understood, since they are fundamental institutions. What other institutions of the many that the race has developed are worthy of general cultivation is a matter regarding which the school has no clearly defined policy.

The book is interesting and important. It makes very real and concrete the meaning of that vague term "social consciousness" and the significance of social institutions in directing human development.

V. A. C. HENMON

UNIVERSITY OF WISCONSIN

A fundamental revision of procedures in teaching in the secondary school.—Professor Morrison, superintendent of the Laboratory Schools of the School of Education, University of Chicago, has presented in a large, well-printed example of the bookmaker's art[1] "an analysis of teaching procedure in that field of non-specialized education which begins with the end of the primary school and is brought to a close when the youth is ready to enter the university proper" (p. v). The volume marks a new stage in the consideration of teaching procedure at this level and is the most significant *systematic* treatment of the subject since the appearance of the late Professor Parker's *Methods of Teaching in High Schools* more than ten years ago.

The treatment is in four parts, namely, "Fundamentals in the Teaching Process," "Control Technique," "Operative Technique," and "Administrative Technique," each part being made up of three or more chapters. In the first part the basis is laid for the detailed analysis in the subsequent parts. This is accomplished by delimiting secondary education, by establishing the objectives of teaching, by setting up "mastery" in opposition to mere "lesson-learning" as a goal of teaching, and by foreshadowing the appropriate technique in outline form. The part having to do with "Control Technique" is concerned with the developing of a learning situation and describes unique methods of measuring the extent of group control by the teacher and of sustained application on the part of the individual pupil. The bulk of the book, as found in Part III, is appropriately devoted to a consideration of "Operative Technique," that is, teaching proper. Here the procedures are considered by types: the science type (represented by mathematics, grammar, the physical and social sciences, the theory of music, etc.); the appreciation type (literature, other fine arts, religion, moral behavior); the practical-arts type; the language-arts type; and the pure-practice type. Each type and its subject representatives are dealt with at some length, as well as each of the steps in the "teaching cycle," that is, exploration, presentation, assimilation, organization, and recitation. Perhaps it should be said that this sequence is in no sense a resurrection in novel form of the Herbartian succession of formal steps in recitation. The last part contains chapters on "The Integrity of the School," "Pupil Administration," "Control of Pupil Progress," "The Problem Pupil—Case Work," and "Organizing the School." The final chapter also contains suggestions for adapting the revised procedures to schools in which they cannot be fully applied. The value of the part dealing with operative technique is much enhanced by the parts having to do with control and administrative techniques, adding both to the unity and the comprehensiveness of the analysis as a whole.

An important feature of the analysis is the unitary organization advocated. A "unit" in the sense here developed is not so much a topic as an adaptation or change (for example, in understanding or attitude) which it is desired to effect in

[1] Henry C. Morrison, *The Practice of Teaching in the Secondary School.* Chicago: University of Chicago Press, 1926. Pp. viii+662. $4.00.

the pupil. Those who have kept in touch with the reports of experiments with the procedure in the Laboratory Schools of the University of Chicago (*Studies in Secondary Education*, Vols. I and II) are already conversant with the organization of instruction for which it calls. The large extent of experience with the procedure has made it possible for the author to present a volume replete with concrete and practical illustrations.

The proposals made are destined to have profound influence on teaching in the secondary schools, both through adoption and through adaptation where adoption is not immediately practicable. The book merits careful study by teachers of all subjects offered at this level and by those in supervisory or administrative control of schools. It will receive much attention in institutions of teacher-training.

LEONARD V. KOOS

UNIVERSITY OF MINNESOTA

The problem of equalization in state school finance.—That the state should undertake to modify existing inequalities in the burden of publicly supported schools in the different units of organization within its boundaries is a matter of general agreement. The manner in which this may be done fairly, the extent to which the wealthier communities should be required to aid the poorer communities, and the taxing devices which will effectively provide for any specified program of such service are some of the phases of the general problem of equalization which are not readily subjected to legal formulas in the face of conflicting opinions, constitutional limitations on taxing procedure, and the prevailing influence of political expediency in all legislation affecting state appropriations. For some years the tendency of legislation has been clearly in the direction of more liberal subsidies from the state and of more equitable bases of apportioning equalizing funds among the units entitled to aid. Such progress as has been made in the way of leveling the burden of supporting schools is rather generally traceable to the influence of scientific investigations in the fields of taxation and educational administration.

One[1] of the recent studies of the latter type attempts to utilize two progressive steps in tax reform as the basis of an equalizing policy with respect to the support of a specified minimum program of public education. In 1919 the legislature of North Carolina instituted an impartial survey of real property to secure an equalized assessment throughout the state, and in 1920 a graduated state income tax was provided for by popular referendum. Although the state's control of county property assessments was relinquished in 1921, the valuations set by the state tax commission in 1920 provide a fair measure of the relative positions of the different counties with respect to the value of taxable property. Local school revenues are derived from an ad valorem tax on property thus evaluated,

[1] Fred Wilson Morrison, *Equalization of the Financial Burden of Education among Counties in North Carolina*. Teachers College Contributions to Education, No. 184. New York: Teachers College, Columbia University, 1925. Pp. vi+88.

the state distributive fund being derived entirely from the tax on incomes. With the record of equalized valuations in 1920 and income taxes paid in 1923 as a basis, the author derives an index number of the relative ability of the counties to support a definite minimum program of specified term, salary rates, and curriculum. These factors and the pupil population being known, a suggested plan of equalization is presented with computations to show how much each weaker county should receive in subsidy and how much each wealthier county should contribute to the equalizing fund.

The chief value of Mr. Morrison's study lies in the fact that the basic elements of his scheme of equalization are in line with the probable ultimate taxing procedure in the majority of the states. Wherever the currently recognized principle of a division of tax exactions between property holdings and income may be instituted by the state, some adaptation of this program should prove to be an easy and effective approach to a more rational distribution of the burden of financing the educational program prescribed by the state. Practical or political difficulties may sometimes arise, as instanced in the action of the state of North Carolina in giving back to the counties the control of assessment lists, but the scheme seems sufficiently flexible to provide against serious interruption of a program once established.

While the analysis presented indicates that the minimum program described can be provided for with a more nearly equated effort on the part of the several counties, as judged by the measures of ability selected, there are some phases of the formula employed which clearly require more scientific study. For example, in deriving the index of the economic ability of a county, the author takes into consideration both the value of the property assessed and the amount of income tax paid, arbitrarily adding 1 per cent of the assessed valuation to the total amount of the taxes paid on incomes. Casual inspection of the varying ratios of property valuations to income taxes paid in the different counties suggests that the ranking of the counties would be materially affected if 5 per cent of the assessed valuation were taken instead of 1 per cent. There is nothing to show in which case the incidence of relief would be more fortunate. This much is clear: the change suggested would result in transferring some counties from the group receiving aid to the group contributing to the aid of others, and vice versa. This does not destroy the value of the formula, for the author has suggested a plausible basis of combination of the two elements involved. The significant fact is that the most acceptable weighting of these two elements is itself a problem requiring considerable study. Consideration might also be given to the propriety of graduating assessment lists, if this element is to be combined with income taxes derived from a graduated scale with exemptions affecting a substantial proportion of the population of every community.

Evidence of the fact that the proposed formula has a considerable effect in the direction of equalization of burdens is found in an analysis of the author's proposal as it relates to the wealthiest and the poorest counties of the state. To support the suggested minimum program—that is, a program of assumed

equalized opportunity—the wealthiest county requires $405,000; the poorest county, $208,000. The wealthiest county pays $725,954 in income taxes, about one-third of which apparently goes to the state distributive fund for school purposes, and receives nothing from this distributive fund. The poorest county pays $8,594 in income taxes, $2,865 of which goes to the school fund, and receives $75,647 from the state fund, $72,782 more than it contributes. If this net amount of state aid is subtracted from the total requirements of the program specified, $208,000, it appears that this county must raise a total of $135,218 by assessment on local property. This amounts to $6.97 on each $1,000 of property valuation. Through income-tax payments, the wealthiest county makes a net contribution of $241,985 to the state school fund and raises $405,000 by a property tax for the support of an equivalent school program. This total of $646,985 is the cost to the wealthiest county of the proposed equalized educational program. If the full amount were raised by tax on local property, it would mean the collection of $4.25 on every $1,000 of assessed valuation. While it is clear that the relative responsibilities of the two counties are not fairly equated under the levies of $6.97 and $4.25 on each $1,000 of equalized valuation, the difference is much less than it would be if each county supported its own program by a property tax without state aid, in which case the corresponding rates would be $2.92 for the wealthiest county and $10.72 for the poorest county.

In addition to the contribution which it makes to the ultimate derivation of a practicable formula for the relieving of inequalities in educational opportunities within the state, the book presents an interesting historical account of the legislative efforts of North Carolina to improve the condition of its schools and to modernize its taxing procedure. In relating his proposed scheme to the general revenue situation in the state, the author has done an exceptionally good piece of work. In basing his suggested formula on a clearly defined minimum program of educational opportunity which is within the range of the state's ability to attain and support, he has made a worthy contribution to the progress of public education in general. The volume will be read with interest by anyone concerned with the organization or support of a state school system.

NELSON B. HENRY

SECRETARY, COMMITTEE ON FINANCE
BOARD OF EDUCATION OF CHICAGO

Child-accounting in schools.—Within recent years education has discovered the child and is coming to conceive its task as that of developing him and his powers in an all-sided way. It must begin by discovering his potential powers. These are so numerous in the case of a single individual, not to mention the scores or hundreds of individuals who make up a school, that they must be made matters of record rather than of memory. Each pupil is differently situated and conditioned from every other, both at home and at school; since the factors involved are numerous and must be kept in mind by those responsible for education, they, too, must be matters of record. Then, as the development of each

pupil's powers proceeds from month to month and from year to year, record is indispensable, since the items are so great in number and so constantly changing that they are beyond the power of the pupil himself to remember, much less the teacher of forty pupils or the principal in charge of several hundred pupils.

Along with, or involved in, the foregoing are matters of age, sex, race, nationality, residence, changes of residence, size of family, age as related to the ages of brothers and sisters, family income and standards of living, family integrity, family history, family attitudes, the mother's work, home sanitation and cleanliness, home troubles, home-study conditions, family health, personal health, accomplishments, out-of-school activities, employment, wages, school attendance, measures employed in compelling attendance, personal characteristics, interests, plans for the future, occupational fitness, occupational choice, school history, medical history, athletic history, and others to the number of several score, as enumerated in an unusually comprehensive study[1] by Arch O. Heck. It is clearly impossible for those administering education to keep these various matters in mind without records. The special service of this valuable monograph is to show the various items relative to which records probably should be kept.

Much of the volume is historical, showing the influences that have been operative in developing current child-accounting systems. A far larger portion is statistical, showing the status of child-accounting records throughout the country at present. The monograph contains information of large value to principals, superintendents, and bureaus of research.

FRANKLIN BOBBITT

The administration of the small school unit.—Professor Cubberley estimates that there are between twelve thousand and sixteen thousand consolidated and village schools in the United States, serving approximately 48 per cent of the total population of the country. This group of schools has been profoundly affected by our new social and economic life. Motor transportation, facility of communication, and a revolutionized agriculture have changed rural life and with it the rural schools. In fact, one of the salient features in the reorganization of the public-school system is the development of the consolidated rural school. Today, "the old one-room school of Colonial days is as unsuited to the needs of the country school as the antiquated one-horse shay is unsuited for transportation" (p. 4).

A recent book[2] describes the new village and rural school in its administrative setting. Its principal or superintendent is spoken of as an "educational engineer," the term "engineer" being used in the modern practical sense to

[1] Arch O. Heck, *A Study of Child-Accounting Records.* Bureau of Educational Research Monographs, Number 2. Columbus, Ohio: Ohio State University, 1925. Pp. xvi+246. $1.50.

[2] John C. Almack and James F. Bursch, *The Administration of Consolidated and Village Schools.* Boston: Houghton Mifflin Co., 1925. Pp. xvi+466. $2.40.

describe one who brings things to pass. It is to such a personality that the book is addressed.

The volume deals with four large topics. Part I, a section of five chapters, discusses "The Organization and Business Duties of the Principal." Part II is a two-chapter discussion of "The School Plant and Its Equivalent." Part III is a short practical section of three chapters on "Taking Care of the Transportation Problem." Part IV, which forms the bulk of the book, is a section of sixteen chapters dealing with "Special Problems of Administration and Supervision."

The tone of the book is constructive. It reflects sound common sense, coupled with quantitative thinking. The concrete examples are apt and suggestive. To illustrate, chapter i discusses the principal's duties on the supposition that, "if a book is to be of assistance to the village- and consolidated-school principal, it ought to be written with respect to his duties" (p. 6). The discussion is supported by lists of duties derived from an analysis of state laws and an actual study of the activities of twenty-five principals at work. Later the reader is referred to these lists, and new applications, analyses, and suggestions are made. One of the outstanding features of the book is the presentation of illustrative material taken from actual practice.

Administrative officers in the smaller school units will find the book readable, stimulating, and practical. Students of education and those preparing for the principalship will do well to give it careful study. It is well supplied with cross-references, bibliographies, and exercises for further study. It has a definite place in our educational literature and should be given the welcome due its timely appearance.

F. DEAN MCCLUSKY

PURDUE UNIVERSITY

Another aid for history teachers.—Helpful books on the teaching of history in the elementary school are altogether too few. Because of this fact, a recent book[1] will receive hearty welcome from those interested in the subject. The author is not unknown to teachers. His books on *The Teaching of Arithmetic*, *Teaching English in Elementary and Junior High Schools*, and *Teaching Children to Read* have been available for some time.

The Teaching of History is but the main title of Professor Klapper's new book. The teaching of civics is also included, Part V being devoted to this subject. Part I consists of one chapter on the meaning of history; Part II, containing nine chapters, is devoted to a discussion of how to attain the values of history. Part III, composed of three chapters, discusses the content of history through the ninth year. Methods of teaching history are discussed in Part IV, four rather long chapters being given to the subject. At the end of most of the chapters the author has included what he calls "Problems for Study and Dis-

[1] Paul Klapper, *The Teaching of History*. New York: D. Appleton & Co., 1926. Pp. xx+348.

cussion." These are intended to furnish the reader opportunities to apply the contents of the chapters.

While the book as a whole does not call for adverse criticism, it must be said that it contains but two chapters that one could consider new. One of these chapters is entitled, "The Attempts to Standardize History"; the other, "Testing the Results of Teaching." In the former the author discusses at some length the recent efforts to determine a curriculum in history by means of objective standards. While this material has appeared before in monographs and yearbooks, this is the first time that it has found its way into a book on the teaching of history.

The new material in the chapter on testing results deals with the new-type history tests. Here also one finds material that has been available only in special monographs on the subject. No textbook in the teaching of history other than the one under review contains samples of the true-false test, the multiple-choice test, the completion test, the test of labeling, the matching test, and the essay-provoking test. History teachers unfamiliar with these new-type tests will be glad to have the excellent examples of each which Professor Klapper includes in his book.

The author's conception of what is included under "Methods of Teaching" is contrary to current practices in this field. The recitation, the textbook, testing results, and standardized tests are the chief topics discussed in Part IV. The so-called "problem" and "project" methods are not treated here. Furthermore, one finds no specific treatment of the topical method, the textbook method, and the laboratory method. It may be that the author does not think that these methods have any place in the first nine grades.

Besides the author's conception of methods, one finds in the book many other things that shock one for the moment. For example, the following appears on page 127: "D. S. Muzzey, *American History*, 2 vols." It is Muzzey's *United States of America* that contains two volumes. On page 133 one learns that modern textbooks in history devote 42 per cent of their space to political history, 40 per cent to military history, and 18 per cent to social-economic history. Inasmuch as the total is 100 per cent, there would seem to be but three phases of history. Furthermore, if three people should analyze a number of books for political, military, and social-economic history, they would probably get three different results. In other words, all such material is misleading and unscientific.

On page 163 is this statement: "Tryon compiled reports from 259 school systems . . . . and found that there is a strong tendency to familiarize the pupils with Roman myths and biographies, but a less persistent desire to teach similar Greek stories." The trouble here is that Tryon's data are sixteen years old. The word "is" in the foregoing ought to be changed to "was." What was true in the field of history in the elementary school sixteen years ago is by no means true today.

The author's treatment of general history or world-history is very misleading. In one place (p. 182) he cites *The Story of Mankind* and *The Outline of*

History as his conception of this field; in another place (p. 183) he says that general history or world-history is taught in nine states in the whole of the sixth year. Reference here, of course, is to the European background that the Committee of Eight recommended for the sixth grade. To call such a course world-history shows an erroneous conception of what the committee had in mind.

On page 334 *The Course in Community Life, History, and Civics in the University Elementary School, the University of Chicago* is spoken of as a unified course in the social studies. This course was prepared in 1914–15 before the discussion over separate and unified courses arose. Beyond the third grade, the course is a first-class example of separation rather than of unification. On page 335 Gambrill's *Experimental Curriculum Making in Elementary Schools* is cited. Gambrill has no publication by this name. On one page in the book Schlesinger's name is printed "Schelessinger" and on another page "Schlesinger." Titles of books are both quoted and italicized on the same page (p. 336). After reading the book, the reviewer feels that a painstaking job of editing would have improved it beyond measure.

R. M. TRYON

Basic readers for the primary grades.—The last five years have witnessed radical changes and improvements in the character of the reading materials prepared for use in the first grade. For example, instead of sentences selected primarily for vocabulary-building, entertaining stories are used which relate to the interests and activities of the pupils. Furthermore, the stages through which pupils pass in learning to read are carefully considered in organizing and presenting reading lessons. These and other important tendencies are admirably illustrated in a recent manual and two beginning books in reading.[1] They are an outgrowth of the successful experience of Marjorie Hardy as a first-grade teacher in the University Elementary School, University of Chicago.

Contrary to traditional practice, these books are given titles which suggest the character of their content. The title of the first book is *Wag and Puff*. The early stories describe the activities of a dog and a cat which found a home with a boy and a girl. Later sections of the book describe a wide variety of interesting experiences of these children and animals. The author has been unusually successful in selecting themes that appeal strongly to the interests of most boys and girls. The stories are well written and attractively illustrated. The vocabulary problem has been carefully considered, with the result that new words are introduced gradually; a sufficient amount of repetition is also provided. The fact that all the stories relate to the same characters insures continuity of interest.

The second book is entitled, *Surprise Stories*, and includes a very interesting series of stories relating to the activities of the characters introduced in the first book. As indicated by the title, the author has made use of a very clever device

[1] Marjorie Hardy, The Child's Own Way Series: *Wag and Puff—A Primer*, pp. iv+140; *Surprise Stories—A First Reader*, pp. iv+140; *First Grade Manual*, pp. 304. Chicago: Wheeler Publishing Co., 1926.

for insuring interest, attention, and good interpretation. A wide variety of experiences are described, as evidenced by the titles "A Night on the Farm" and "The Boy Clown." The book also includes special-day stories, such as "A Thanksgiving Joke" and "The Best Valentine." These titles indicate that the content of the book is both interesting and instructive.

The manual which accompanies these books is worked out in great detail and provides teachers with a wealth of suggestions for use in developing essential reading attitudes and habits. The procedures outlined are based on five stages of growth through which children pass in learning to read. These stages are characterized by the author as follows: "awakened interest," "desire to explore the unknown," "word consciousness," "feeling of independence," and "the goal." The aims of each period are clearly outlined, and definite standards of achievement are suggested. For example, "the goal" is attained "when the child reads voluntarily, extensively, and with evident interest and absorption" (p. 21). It is possible that all specialists in reading may not approve the specific terms used in describing the stages through which children pass in learning to read. Nevertheless, the author has made a distinct contribution to both the theory and the practice of primary reading by basing methods of teaching on clearly recognized psychological facts. She has been equally successful in developing a system of teaching reading which secures independence of word recognition while attention is centered chiefly on the content of what is read.

WILLIAM S. GRAY

Education as the development of the "self-purposing individual."—Our educational problems have become vastly more numerous and vastly more complicated through our rediscovery of the individual. So long as we conceived of the school as the active agent and of the pupil as the passive agent, we could look with equanimity on forms of school organization, methods of instruction, and bodies of subject matter which now, with our changed point of view, are the objects of extreme distrust and often of open hostility. We are in a period of transition, in which we are evolving a theory of education as the development of the socially efficient individual and are altering our educational machinery for the production of such a commodity. Fundamental readjustments are slow, however, and our theory of reform has far outstripped our practical adaptations.

The Self-directed School[1] is both a spirited defense of the newer point of view on theoretical grounds and a demonstration of its practicability in actual operation. "How to produce the self-active, socially-minded individual who can be trusted with power constitutes the central theme" (p. v) of this book.

While chiefly interested in the possibilities afforded by the high school for the development of the individual, the authors condemn in no uncertain terms the "ordinary routine, receptive methods, group mediocrity, unthinking obedience and docility" which are still to be found at all levels of our educational

[1] Harry Lloyd Miller and Richard T. Hargreaves, *The Self-directed School*. New York: Charles Scribner's Sons, 1925. Pp. vi+412.

system. They think of the high school as "our universal institution wherein all the youth of the nation are to develop individual capacity and real genius for co-operation. The deliberate purpose of the school is to assist each pupil to become an excellent judge of his own *developing* powers and also a good judge of his own *developing* opportunities" (p. 130). To this end, the subject matter of the high school is to be divided into six or seven distinct fields of education: English, mathematics, social studies or history, science, foreign language, constructive arts, and possibly aesthetic studies. The curriculum for a given pupil is to consist of units or "challenges" within these fields. Individual differences are recognized not by segregating on the basis of ability or by adopting different time-schedules but by varying the requirements within each unit and by rewarding completion of the different levels of "contract" by appropriate marks. This general technique will be remembered as that set forth by Miller in his earlier work, *Directing Study*.

The book, comprising about four hundred pages, consists of eight chapters devoted to the following topics: "Guide Lines: Working Hypotheses and Ideals in the Promotion of Creative Thinking," "Educating up to Capacity," "Curriculum Building and Curriculum Thinking" (two chapters), "Adequate Schooling for the Youth of the Nation," "The Individual and the Broader Curriculum," "Semi-curricular and Extra-curricular Activities," and "Guidance." There are thirteen pages of "Résumé," in which the authors repeat the paragraph headings from their discussion of the main topics. The bibliographical references are confined to footnotes.

The reaction of the critical reader to the content of the book is likely to be very different from his reaction to the form in which the material is presented. He will be inclined to approve most of the content. He will undoubtedly agree with the essential thesis, namely, that education is not an end in itself but is society's means of developing worthy members. He will applaud the attacks on lesson-learning, half-mastery, and the like, and will welcome the suggestions regarding the reduction and correlation of the great variety of courses in the high school. He will appreciate the truth of the authors' warning against over-reliance on intelligence-test scores. In all of this the authors are presenting points of view which are rather generally accepted by present-day educational leaders; the chief merit of their discussion lies in its vigor and forcefulness. With regard to the value and the feasibility of the authors' plan for attaining the goals they have set for education, opinions will differ. One may well question motivation through the marking system as the best sort of stimulus to adopt in the training of future citizens in a democracy.

The authors are at their best when they are discussing practical matters of administrative procedure. When they attempt to bring philosophical considerations to the support of their theories, the reading becomes exceedingly obscure and tortuous. Their practice in using new words and old words with new meanings adds to the general confusion. The following quotation will serve to illustrate.

It is not alone the system of interrelating and mutually interpenetrating interests made possible in the gripping of an organizing principle in particular courses that should serve as *guide lines* in the new secondary school, self-directed to creative exercise of faculties, but the reaching out of organizing principles—the ramification of *guide lines* into other fields of the curriculum—should be freely encouraged [p. 11].

Each chapter consists of thirty or thirty-five sections, each introduced by a caption in italics and usually in the form of a question. The result is an impression of lack of both unity and orderly progression in thought.

The genuine worth of the book outweighs the adverse criticisms which have been made, for, as has been pointed out, these criticisms are of form rather than of content. The administrator who is not abreast of current educational theory could read few books with greater profit.

W. A. BROWNELL

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BUCKINGHAM, BURDETTE ROSS. *Research for Teachers.* Newark, New Jersey: Silver, Burdett & Co., 1926. Pp. vi+386. $2.20.

DAVIS, SHELDON EMMOR. *Self-Improvement: a Study of Criticism for Teachers.* New York: Macmillan Co., 1926. Pp. xvi+280.

DOUGHTON, ISAAC. *Evolution of the Public School Bonded Debt of Pennsylvania.* Philadelphia: University of Pennsylvania, 1925. Pp. 122.

HANUS, PAUL H. *Opportunity and Accomplishment in Secondary Education.* The Inglis Lecture, 1926. Cambridge, Massachusetts: Harvard University Press, 1926. Pp. 60.

HOWERTH, IRA WOODS. *The Theory of Education.* New York: Century Co., 1926. Pp. xvi+414. $2.00.

KELLEY, TRUMAN LEE. *The Influence of Nurture upon Native Differences.* New York: Macmillan Co., 1926. Pp. viii+50.

MUELLER, A. D. *Progressive Trends in Rural Education.* New York: Century Co., 1926. Pp. xxxii+364. $2.00.

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